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Considered
6-24-09

p.19
p.62

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? DS

Set	Items	Description
S1	975716	FERTILIZ? OR FERTILIS?
S2	1524154	HUMIDIF? OR MOIST? OR DAMP????
S3	351558	FOSSIL?
S4	11295	GLUCONIC? (2N) ACID??
S5	23190112	ALKALI? OR BAS???
S6	156002	POTASSIUM? (2N) HYDROXID? OR KOH? ? OR ALUMINUM? (2N) HYDR- OXID? OR ALOH OR ALOH3
S7	1094279	NUTRIENT? OR NUTRITIION? OR MICRONUTRI? OR MICRO? ? (2N) N- UTRI? OR MACRONUTRI? OR MACRO? ? (2N) NUTRI?
S8	8256261	(PARTICL? OR MICROPARTICL? OR PARTICULAT? OR DUST? OR GRIT? OR GRAIN? ? OR GRANUL? OR POWDER? OR SOOT? OR SMUT? OR FINES? ? OR PRILL? OR FLAKE? ? OR PELLET? OR BB? ?)
S9	90257	HUMIC?
S10	854	LEONARDIT?
S11	776515	COAL?
S12	3238388	(CLEAN? OR LAUND? OR RINS? OR DETERS? OR ABSTERS? OR EDULC- ORAT? OR SANIT? OR HYGIEN? OR DISINFECT? OR DECONTAMINA? OR S- TERILI? OR ABLUT? OR ELUTRIAT? OR SCRUB? OR SCOUR? OR DEGREAS? OR LIXIV?)
S13	11495769	PLANT? ? OR CASTOR? OR LUPIN?
S14	330373	STARCH?
S15	3672	S1 AND S3
S16	1	S15 AND S4
S17	453	S15 AND ACID???
S18	194	S17 AND S5
S19	44231	S12 (2N) SOIL?
S20	2	S18 AND S19
S21	5	S17 AND S10
S22	48	S17 AND S11
S23	4	S22 AND S9
S24	24	S17 AND S9
S25	194	S17 AND S5
S26	3	S25 AND S6
S27	82	S25 AND S13
S28	1	S27 AND (CASTOR? OR LUPIN?)
S29	20289	S7 (2N) (ADD? ? OR ADDITIV? OR ADDITION?)
S30	1	S25 AND S29
S32	114	S1 AND ACID???
S33	1613	S1 AND ACID???
S34	4400	S1 AND ACID???
S35	12	S32 AND S33 AND S34
S36	2	S32 AND S14
S37	8	S33 AND S19
S38	92	S1 AND S4
S39	7	S38 AND S9

S40 55 S16 OR S20 OR S21 OR S23 OR S24 OR S26 OR S28 OR S30 OR S35
OR S36 OR S37 OR S39
S41 27 S40 FROM 350
S42 28 S40 NOT S41
S43 24 RD S42 (unique items)
S44 27 RD S41 (unique items)

? T S43/7,DE/1-24

43/7,DE/1 (Item 1 from file: 8)
DIALOG(R)File 8: Ei Compendex(R)
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06654994 E.I. COMPENDEX No: 19640004515
Humic acids from lignite

Youngs, R.W.
United States Bureau of Mines -- Information Circulars Cir 8164 1963 (Bureau of Mines Washington, DC United States), p 87-93
Publication Year: 1963
Document Type: RC; (Report Chapter)
Language: English
Experimentation with leonardite including recovery, structural study, and uses of humic acids from leonardite; preparation of fertilizer from leonardite, and mild oxidation of lignite to leonardite-like material.
Descriptors: *Coal byproducts

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/2 (Item 1 from file: 10)
DIALOG(R)File 10: AGRICOLA
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4836786 44019576 Holding Library: AGL
Comparison of Two Analytical Methods for the Evaluation of the Complexed Metal in Fertilizers and the Complexing Capacity of Complexing Agents

Villen, M. Lucena, J.J.; Cartagena, M.C.; Bravo, R.; Garcia-Mina, J.; Hinojosa, M.I.M. de la
Journal of agricultural and food chemistry. 2007 July 11, v. 55, no. 14 p. 5746-5753.
ISSN: 0021-8561
DNAL Call Number: 381 J8223
Language: English
URL: <http://dx.doi.org/10.1021/jf070422t>
Includes references
<http://dx.doi.org/10.1021/jf070422t>; Available from publisher's Web

site

Place of Publication: |||

Document Type: Article

The aim of this research is to develop an analytical methodology for the determination of complexed element in **fertilizers** and, then, to obtain an adequate criteria for the inclusion of these products in European Regulations on **Fertilizers**. This paper compares the CEN method EN 13366:2001, based on the retention of the cations into a sulfonated resin, and an AOAC modified method, based on the precipitation of the inorganic forms at pH 9. A limited interlaboratory trial was carried out to demonstrate the applicability of the AOAC modified method and to study the effect of the removal of organic compounds and the addition of a matrix modifier solution before the element quantification. Then, a global interlaboratory trial was developed to evaluate the validation and quality parameters of the method. As a second objective, the AOAC modified method was applied to the determination of the complexing capacity of complexing agents based on lignosulfonates and amino acids. The AOAC modified method was the choice methodology because it is adequate for the determination of complexing capacity of micronutrients in **fertilizer**.

Descriptors: fertilizer analysis; trace elements; metals; amino acids; lignosulfonates; humic acids; gluconic acid; fertilizers ;

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/3 (Item 2 from file: 10)

DIALOG(R)File 10: AGRICOLA

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3541257 20536867 Holding Library: AGL

Identification of peat and leonardite using humification parameters and isoelectric focusing (IEF): a first approach

Ciavatta, C. Govi, M.; Bonoretti, G.; Gessa, C.

University of Bologna, Bologna, Italy.

Dordrecht : Kluwer Academic Publishers.

Fertilizer research. 1995/1996. v. 44 (3) p. 225-230.

ISSN: 0167-1731 CODEN: FRESDF

DNAL Call Number: S631.F422

Language: English

Includes references

Place of Publication: Netherlands

Subfile: IND; OTHER FOREIGN ;

Document Type: Article

Several samples of peat and leonardite (organic fossil material of vegetable origin) and of humic extracts from peat and leonardite were characterized using some humification parameters and isoelectric focusing (IEF). The HA/TOC and the humification rate (HR) show values lower than 60% for peat and higher than 70% for leonardite samples. These two

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parameters are useful to distinguish peat from leonardite, but unable to identify the organic materials in the humic extracts. Peat and leonardite samples and their humic extracts were characterized using IEF and evaluating the quantitative distribution of the bands of the profile. The group of bands in the range from pH 4.8 to 5.5 (region C) is characteristic in all samples. In particular, the relative area is less than 55% for peat and humic extracts from peat and higher than 60% for leonardite and humic extracts from leonardite.

Descriptors: organic fertilizers; peat; leonardite; identification; characterization; humification; extracts ; organic matter; carbon; isoelectric focusing; fertilizer analysis; chemical composition; humic acids; ratios ;

43/7,DE/4 (Item 1 from file: 24)
DIALOG(R)File 24: CSA Life Sciences Abstracts
(c) 2009 CSA. All rights reserved.

0003500243 IP Accession No: 8780183
Controls of microbial carbon cycling in northern peatlands.

Keller, Jason Kistler
, Suppl. B , v 69 , n 01 , p 250 p. , 2006
Publication Date: 2006

Document Type: Book Monograph

Record Type: Abstract

Language: English

ISBN: 9780549427797

ASFA No: CS0906882

Notes: University of Notre Dame. Copies of dissertations may be obtained by addressing your request to ProQuest, 789 E. Eisenhower Parkway, P.O. Box 1346, Ann Arbor, MI 48106-1346. Telephone 1-800-521-3042; email: dissup super(m)i.com.

File Segment: Ecology Abstracts; Biotechnology Research Abstracts; Industrial & Applied Microbiology Abstracts (Microbiology A)

Abstract:

Peatland soils currently store 455×10^{15} g carbon, approximately 75-times the amount of carbon released annually from fossil fuel burning. In response to future global change, this stored carbon could be released to the atmosphere as carbon dioxide (CO_2) and/or methane (CH_4) as a result of enhanced microbial decomposition, augmenting anthropogenic emissions of these important greenhouse gases. Thus, understanding the controls of microbial carbon cycling in peatlands has important implications in the context of global climate change. This dissertation focuses on the controls of anaerobic carbon mineralization and aerobic CH_4 oxidation in peatland ecosystems. I used an experimental mesocosm system to examine the effects of 6-year manipulations of infrared loading (warming) and water-table level on

potential carbon mineralization in bog and fen peat. Peat was incubated under uniform anaerobic conditions in the laboratory, and observed differences in CO sub(2) and CH sub(4) production were attributed to indirect effects of climate through changes in soil quality; however, these changes did not lead to shifts in the dominant pathway of CH sub(4) production. I also used a combination of short-term nutrient amendments and long-term ecosystem **fertilizations** to demonstrate that nitrogen and phosphorus are important controls of microbial carbon cycling in peatlands; however, the role of these nutrients is strongly mediated by peatland type. For example, in peatlands from northern Michigan, anaerobic carbon mineralization in bog peat was consistently inhibited by increased phosphorus availability, but similar phosphorus additions had few effects in peat from an intermediate fen and stimulated CH sub(4) production in rich fen peat. Finally, I constructed budgets of anaerobic carbon mineralization in a bog, an intermediate fen, and a rich fen from northern Michigan. CH sub(4) production was responsible for between 3 and 70% of anaerobic carbon mineralization and sulfate reduction explained between 2 and 31%. A large proportion of anaerobic carbon mineralization (from 27 to 85%) was unexplained and is likely due to fermentation processes or the use of **humic acids** as electron acceptors. This dissertation demonstrates that understanding the pathways of microbial carbon cycling is essential to predict the response of peatland ecosystems to global change.

Descriptors: {Q1}; Anaerobic conditions; Atmosphere; Burning; Carbon; Carbon cycle; Carbon dioxide; Carbon monoxide; Climatic changes ; Decomposition; Fermentation; **Fertilization**; **Fossil fuels**; Greenhouse effect; Greenhouse gases; **Humic acids**; Mesocosms; Methane; Mineralization; Nitrogen; Nutrients; Oxidation; Peat; Peatlands; Phosphorus; Soil; Sulfate reduction
Abstract

43/7,DE/5 (Item 1 from file: 40)

DIALOG(R)File 40: Enviroline(R)

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00338275 **Enviroline Number:** 83-04749

**UPTAKE OF BORON AND OTHER TRACE ELEMENTS BY TALL FESCUE GROWN IN COAL
CLEANING WASTES WITHOUT SOIL**

LEWIS, BARBARA-ANN, NORTHWESTERN UNIV

UNIV OF WIS MUNIC & IND WASTE RES & PRACTICE 5TH CONF, MADISON p433(11)
MADISON, SEP 22-24, 82

Document Type: research article **Language:** English

(Full text available from Congressional Information Service at
1-800-227-2477.)

Abstract: MANY COAL WASTE SITES REQUIRE SOME TYPE OF TREATMENT, SUCH AS PH ADJUSTMENT UPWARD OR **FERTILIZATION**, BEFORE THEY CAN BECOME COMPLETELY RECLAIMED; ONE METHOD OF TREATMENT IS USING A COVER OF TALL FESCUE. THE

PLANT TAKES UP VARYING LEVELS OF BORON FROM THE SOIL AND DOES NOT REQUIRE ANY GROWING MEDIUM OTHER THAN THE COALS WASTES. OTHER TRACE ELEMENT UPTAKE OF THE PLANT IN COAL REFUSE WITH AN ACIDITY OF AROUND PH.6.5 IS NEGLIGIBLE.

Major Descriptors: BIOACCUMULATION, PLANT; COAL WASTES; LAND RECLAMATION; BORON; HEAVY METALS; SOIL ANALYSIS ;

Minor Descriptors: CONFERENCE PAPER

43/7,DE/6 (Item 1 from file: 44)

DIALOG(R)File 44: Aquatic Science & Fisheries Abstracts

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0000962829 IP Accession No: 5835045

Alterations in the organic carbon pool recorded in sediments of Guanabara bay, Brazil, a fertilized tropical estuary

Book Title: Marine Pollution.

Carreira, RS; Kalas, FA; Santos, ES; Lima, AL; Godoy, JM; Wägener, ALR
The International Atomic Energy Agency (IAEA); The Intergovernmental
Oceanographic Commission (IOC) of UNESCO; The United Nations Environment
Programme (UNEP) Dept. of Oceanography, Rio de Janeiro State University,
20550-013 Rio de Janeiro Brazil

, p 638-639 , July 1999

Publication Date: 1999

Publisher: International Atomic Energy Agency, Monaco

Conference:

Symposium on Marine Pollution, Monaco, 5-9 Oct 1998

Document Type: Book Monograph; Conference

Record Type: Abstract

Language: English

Summary Language: English

Numbers: IAEA-TECDOC-1094

ASFA No: KETF1999

Notes: Physical medium: Printed matter; Incls. 260 refs; Marine

File Segment: ASFA 3: Aquatic Pollution & Environmental Quality

Abstract:

As a consequence of anthropogenic impact in coastal areas, cycling of organic matter in these systems may be undergoing significant alterations, in response to the increased imbalance between natural (marine and terrestrial) and anthropogenic carbon. Assessment and comprehension of carbon fixation processes in coastal systems are matters of great concern because of its possible effects on atmospheric CO sub(2) excess derived from fossil fuel burning. Guanabara Bay (Figure 1) is an estuary situated in the heart of Rio de Janeiro city. The bay receives 20

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m super(3) S super(-1) of raw sewage derived from a population of about 5x10⁶ inhabitants living in the catchment area. In addition the bay receives waste waters from the second largest industrial district of Brazil as well as drainage from rural areas. Guanabara Bay is a specially interesting ecosystem to study alterations on carbon fixation due to the elevated primary productivity (average of 2.9 C m⁻¹ day⁻¹), high sedimentation rates (1-2 cm year⁻¹), super(2) and high load of sewage derived nutrients (10⁵ ton of P and 10⁶ ton of N per year) super(3). We designed a core project in Guanabara Bay aimed at studying the possible anthropogenic impact on early diagenesis of sedimentary organic matter deposited in this system over the last century. The basic approach has been to look for the molecular, elemental (C, N e P) and isotopic compositions of organic matter in order to obtain the necessary information. The present work presents data on C, P and isotopic composition of organic matter, as well as the results of polyaromatic hydrocarbons, sedimentation rates and humic acids so far obtained for cores collected at several stations in the bay. Sediment cores (each with ca 60-70 cm length), collected from eight stations in the bay, were first sliced under nitrogen atmosphere and then freeze-dried. Elemental analyses were performed in a Perkin Elmer CHN analyzer after removal of inorganic carbon with hydrochloric acid; organic phosphorus was obtained by difference between total and inorganic phosphorus; $\delta^{13}\text{C}$ in the organic matter was determined in a Finnigan MAT 252 mass spectrometer, using PDB as reference; humic acids were extracted with NaOH, purified and freeze-dried; for determination of polyaromatic hydrocarbons, we used Soxhlet extraction followed by quantification by GC/FID. Sedimentation rates were determined using Pb-210.

Descriptors: Organic carbon; Fertilizers; Organic matter; Man-induced effects; Collisions; Sediments; Molecular structure; Accumulation; Methanogenesis; Water column; ASW, Brazil, Rio de Janeiro, Guanabara Bay
Abstract

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/7 (Item 1 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0009332619 CAB Accession Number: 20073206442

Impact of high-lignin fermentation byproduct on soils with contrasting organic carbon content.

Johnson, J. M. F.; Sharratt, B. S.; Reicosky, D. C.; Lindstrom, M.

Author email address: jane.johnson@ars.usda.gov

USDA-ARS, North Central Soil Conservation Res. Lab., 803 Iowa Ave., Morris, MN 56267, USA.

Soil Science Society of America Journal vol. 71 (4): p.1151-1159

Publication Year: 2007

ISSN: 0361-5995

Digital Object Identifier: 10.2136/sssaj2006.0172

Publisher: Soil Science Society of America Inc. Madison , USA

Language: English **Record Type:** Abstract

Document Type: Journal article

Agricultural biomass is a potential renewable biofuel that may partially replace non-renewable fossil fuels. Maize stover is rich in cellulose and hemicellulose, both of which can be converted to sugars and fermented to ethanol. This fermentation process results in a high-lignin fermentation byproduct (HLFB) that could be converted to energy products or used as a soil amendment. We had two objectives: (i) to determine whether HLFB (0.1, 1.0, or 10 kg m SUP -2) could improve soil properties in two soils with contrasting levels of soil organic carbon (SOC); and (ii) to assess the impact of HLFB on crop growth. These goals were addressed with separate experiments. In the soil experiment, two soils (Svea loam (Mollisol) and Langhei loam (Inceptisol)) collected from Minnesota (USA) were amended with HLFB or ground maize stover and then incubated in pots for 118 days. Flux of CO SUB 2 was monitored and soil properties were measured after incubation. In the plant experiment, maize and soyabean were grown in pots, without amendment or amended with 1.0 kg m SUP -2 maize stover or 1.0 kg m SUP -2 HLFB. The soil experiment indicated that the addition of 10 kg m SUP -2 HLFB increased CO SUB 2 emission, humic acid concentration, and water-stable aggregates, and decreased bulk density (D SUB b). No adverse impacts on crop growth were measured when HLFB was applied at a rate of 1.0 kg m SUP -2 . Much of the HLFB may be used by the energy industry, but perhaps a percentage could be returned to the field to reduce the impact of maize stover removal on soil C. 45 ref.

Descriptors: aggregates; bulk density; carbon dioxide; fermentation; fermentation wastes ; growth; humic acids; Inceptisols; lignin; loam soils; maize; maize stover; Mollisols; organic amendments; organic carbon; pot experimentation; soil amendments; soil temperature; soil types; soil water content; soil water retention; soyabeans

Organism Descriptors: Glycine (Fabaceae); Glycine max; Zea mays

Geographic Names: Minnesota; USA

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/8 (Item 2 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0009195439 **CAB Accession Number:** 20073017844

Phytoremediation - a review.

Ramanjaneyulu, A. V.; Gajendra Giri

Division of Agronomy, Indian Agricultural Research Institute, New Delhi -

100 012, India.

Agricultural Reviews vol. 27 (3): p.216-222

Publication Year: 2006

ISSN: 0253-1496

Publisher: Agricultural Research Communication Centre Karnal , India

Language: English **Record Type:** Abstract

Document Type: Journal article

The pollution of environment i.e., soil, water and air is quite common. The contamination of first two with metals, heavy metals and radionuclides has increased since the start of the industrial revolution. The primary sources of pollution include burning of fossil fuels, mining and smelting of metalliferous ores, municipal wastes, fertilizers, pesticides and sewage. The pollution of soil and water is posing threat to human, animal and plant life in various ways. Soil, which is called a natural resource base for plant growth is becoming unfit for cultivation mainly due to contamination of heavy metals. These include Cd, Pb, Cr, Au, As, Cu, Zn, Se and Ni. Phytoremediation is the best option for cleaning up environment as it is the ecologically sustainable and environmentally viable technology. The Brassica species are identified as good candidates for phytoextraction of heavy, metals especially Zn. EDTA and citric acid are commonly used for induced phytoextraction of Pb. Rabbit foot grass was identified as suitable species for phytovolatilization of Se from constructed wetlands. The aquatic plant species are regarded as best species for removing metals from contaminated water. Poplar trees are used for phytodegradation of harmful compounds like TNT. This green cure technology no doubt has the ability to clean up contaminated soil and water, but the process progresses slowly. 35 ref.

Descriptors: agricultural chemicals; air pollutants; air pollution; arsenic; cadmium; chromium; citric acid; copper; EDTA; environmental management; fuels; gold; heavy metals; lead; mine spoil; nickel; phytoremediation; pollutants; public health; radionuclides; refuse; selenium; sewage; soil pollution; water pollution; water quality; zinc
Organism Descriptors: Brassica

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/9 (Item 3 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0008824538 CAB Accession Number: 20053074571

Effects of the humic substances of de-inking paper sludge on the antagonism between two compost bacteria and *Pythium ultimum* .

Charest, M. H.; Beauchamp, C. J.; Antoun, H.

Author email address: antoun@rsvs.ulaval.ca

Departement de Phytologie, Faculte des Sciences de l'Agriculture et de

l'Alimentation, Pavillon Paul-Comtois, Universite Laval, Sainte-Foy, Que.
G1K 7P4, Canada.

FEMS Microbiology Ecology vol. 52 (2): p.219-227

Publication Year: 2005

ISSN: 0168-6496

Digital Object Identifier: 10.1016/j.femsec.2004.11.017

Publisher: Elsevier Amsterdam , Netherlands

Language: English Record Type: Abstract

Document Type: Journal article

We investigated the in vitro influence of **humic** substances (HS) extracted from de-inking paper sludge compost on the inhibition of *Pythium ultimum* by two compost bacteria, *Rhizobium radiobacter* (*Agrobacterium radiobacter*) and *Pseudomonas aeruginosa* . When low concentrations (5 or 50 mg/l SUP⁻¹) of HS were added to the culture medium, fungal inhibition by *R. radiobacter* significantly increased ($P < 0.01$) by 2-3%. In contrast, these low levels of HS had no effect on *P. ultimum* inhibition by *P. aeruginosa* . The Fe, chelated by HS, was in part responsible for the decrease of *P. ultimum* inhibition by the bacteria when increasing amounts of HS were added in the culture medium. The addition of 500 mg/l SUP⁻¹ of **humic acids** isolated from de-inking paper sludge compost or from **fossil** origin completely eliminated the inhibition of *P. ultimum* by *R. radiobacter* . This Fe effect also stimulated growth of *R. radiobacter* and reduced its siderophore production in a minimal medium supplemented with HS as sole source of Fe. The results showed that HS influence microbial antagonism when added to a culture medium. However, this effect varies with different factors such as the type of bacteria, concentration of HS, molecular weight and Fe content. 41 ref.

Descriptors: antagonism; composts; fulvic acids; **humic acids**; iron; siderophores; sludges

Organism Descriptors: *Agrobacterium radiobacter*; *Agrobacterium tumefaciens*; *Pseudomonas aeruginosa*; *Pythium ultimum*

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/10 (Item 4 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0008075667 CAB Accession Number: 20013091911

Response of canola, wheat and green beans to leonardite additions.

Akinremi, O. O.; Janzen, H. H.; Lemke, R. L.; Larney, F. J.
Department of Soil Science, University of Manitoba, Winnipeg, Manitoba
R3T 2N2, Canada.

Canadian Journal of Soil Science vol. 80 (3): p.437-443

Publication Year: 2000

ISSN: 0008-4271

Publisher: Agricultural Institute of Canada Ottawa , Canada

Language: English Summary Language: French Record Type: Abstract
 Document Type: Journal article

Leonardite, an oxidized form of lignite obtained from coal mines, is readily available and high in **humic acids** (HA). It has potential as a soil amendment and may have positive effects on crop growth and yield. This greenhouse experiment evaluated the agronomic effect of **leonardite** on three crops: rape (*Brassica napus* var. *oleifera*), wheat (*Triticum aestivum*) and green beans (*Phaseolus vulgare* [*P. vulgaris*]). The factorial design combined five rates of **leonardite** with five fertility treatments (no nutrient, all nutrients except N, all nutrients except P, all nutrients except S, and all nutrients). The fertility treatments had a significant effect on the dry matter yield (DMY) of rape, wheat and green beans. There were also significant effects of fertility on the concentration and uptake of N, P and K by the three crops and S by rape. The application of **leonardite** had no significant effect on the DMY of wheat and green beans but that of rape was significantly increased. Application of 10 g of **leonardite** to 3 kg of soil caused a 27% increase in the DMY of rape when S was excluded from added nutrients, while 1 g of **leonardite** resulted in a 15% increase in yield when all nutrients were applied. In addition, uptake of S, N, P and K by rape were significantly affected by the application of **leonardite** . The yield response of rape was apparently due to the supply of S by **leonardite** with an increasing rate of **leonardite** supplying increasing amounts of S. This result was confirmed in a second experiment where high quantities of **leonardite** were applied. We concluded that **leonardite** increased the yield of rape by supplying S directly and by possibly facilitating the uptake of other nutrients. The lack of response of wheat and green beans to **leonardite** was attributed to their lack of response to S. The experiment showed beneficial effects of **leonardite** on rape, though high rates may be needed to exploit this benefit in field situations. 21 ref.

Descriptors: application rates; crop yield; dry matter accumulation; growth; **leonardite**; nitrogen; nutrient content; nutrient uptake; phosphorus; plant nutrition; potassium; rape; responses; soil amendments; soil fertility; sulfur; swede rape; wheat

Organism Descriptors: *Brassica napus* var. *oleifera*; *Phaseolus vulgaris*; *Triticum*; *Triticum aestivum*

43/7,DE/11 (Item 5 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0007817862 CAB Accession Number: 19991913293

Effects of compost manure on the bioaccumulation and toxicity of cadmium to air breathing fish *Heteropneustes fossilis* (Osteoglossidae) .

Anilava Kaviraj; Ghosal, T. K.; Bilab Biswas
 Department of Zoology, University of Kalyani, Kalyani-741235, W. B., India.

Italian Journal of Zoology vol. 65 (Supp): p.487-492

Publication Year: 1998

Language: English Record Type: Abstract

Document Type: Journal article

Static (180 day) bioassays were conducted in outdoor cement tanks (300 litres) with air breathing fish *Heteropneustes fossilis* exposed to 2.5 mg Cd/litre, treated individually and with three different levels of compost manure made from the fresh water macrophyte *Pistia stratiotes*. The addition of compost significantly reduced the concentration of dissolved Cd in water and whole body Cd in fish and plankton. For quick removal of Cd from water a high dose of the manure (6.7 g/litre) was more effective than a moderate dose (1.0 g/litre) or cumulative treatment at a moderate dose (1.0 g/litre per month). The cumulative treatment was more effective in reducing whole body concentrations of Cd when exposure was continued for a long period. Growth of fish, with respect to length, weight, and yield were reduced by Cd exposure. Addition of compost manure reduced the ill effects on growth to fish produced by Cd. The high dose of manure immediately resulted a superfluous increase in dissolved inorganic nutrients (NO SUB 3 -N, NO SUB 2 -N, NH SUB 3 -N, PO SUB 4 -P) and primary productivity. Water quality remained within optimum levels recommended for most aquaculture practices when the manure was added at a moderate dose (either once or every month). However, *H. fossilis* could tolerate water highly enriched in dissolved inorganic nutrients. It is concluded that compost manure is a promising tool to counter Cd toxicity in aquaculture, but to avoid organic enrichment a proper dose should be determined according to the condition available. 33 ref.

Descriptors: bioassays; cadmium; composts; fish; fresh water; humic acids; manures; plankton; toxicity; water quality

Organism Descriptors: *Heteropneustes fossilis*; *Pistia stratiotes*

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/12 (Item 6 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0007444017 CAB Accession Number: 19970310515

Results of applying leonardite and humic acids to processing tomatoes.

Original Title: Risultati di apporti di leonardite e acidi umici su pomodoro da industria.

Siviero, P.; Sandei, L.; Colombi, A.

Ssica di Parma, Parma, Italy.

Informatore Agrario vol. 52 (3): p.57-60

Publication Year: 1996

ISSN: 0020-0689

Language: Italian Record Type: Abstract

Document Type: Journal article

The effects of applying leonardite, a naturally occurring substance from

North Dakota formed by oxidation of organic matter over millions of years, and Fruit Stim (**humic and fulvic acids**) were studied in experiments on tomato cv. PS 1296 in 1995 in the Parma region. The tomato plants were raised directly from seed or via transplanted seedlings and fruits were harvested on 11 and 5 September, respectively. Applying **leonardite** at 200 kg/ha 1 month before sowing/transplanting on 5 May/24 May and Fruit Stim on 25 May and 5 June produced the highest marketable yields in both growing systems.

Descriptors: coal; fertilizers; fruit vegetables; fulvic acids; humic acids; leonardite; organic fertilizers; responses; tomatoes; vegetables
Organism Descriptors: Lycopersicon; Lycopersicon esculentum; Solanaceae
Geographic Names: Italy

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/13 (Item 7 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0007376014 CAB Accession Number: 19971905919

Leonardite: a little known fertilizer.

Original Title: La leonardite: un fertilizzante poco conosciuto.

Govi, M.

Istituto di Chimica Agraria, Università di Bologna, Bologna, Italy.

Informatore Agrario vol. 52 (8): p.65-66

Publication Year: 1996

ISSN: 0020-0689

Language: Italian **Record Type:** Abstract

Document Type: Journal article

Origins and properties of **leonardite** formed from fossilised plant residues and very rich in **humic acids**, and now available in Italy as granules, powder or in liquid form, are discussed. The product usefulness and potential in increasing the availability of trace elements and increasing crops quality and yields is considered and economic aspects are presented.

Descriptors: amendments; granules; humic acids; leonardite; liquids ; powders; trace elements

Geographic Names: Italy

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/14 (Item 8 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0007038592 CAB Accession Number: 19951907181

Effects of humic acids extracted from mined lignite or composted vegetable residues on plant growth and soil microbial populations.

Valdrighi, M. M.; Pera, A.; Scatena, S.; Agnolucci, M.; Vallini, G.
Soil Microbiology Center, National Research Council (CNR), Italy.
Compost Science & Utilization vol. 3 (1): p.30-38

Publication Year: 1995

ISSN: 1065-657X

Language: English **Record Type:** Abstract

Document Type: Journal article

High quality compost (green compost) obtained through the aerobic biostabilization of selected organic residues, such as vegetable waste from source-collection at garden-produce markets, may be developed as an alternative to fossil matrices such as lignite. Beyond the need to develop technically and economically reliable procedures for the extraction of humic substances from compost at the industrial scale, importance must be placed on controlling the influence of such compounds on soil-plant systems. Humates from leonardite, representative of the active agents among humus-based commercial preparations, were compared in pot trials with humic acids and potassium salts from green compost in order to evaluate their effects on soil microbial activity and productivity of chicory (Cichorium intybus). Differences between pot blocks amended with humic acids suggest that humus-like substances extracted from compost stimulate microbial growth and vegetative biomass production more than fossil humates. 42 ref.

Descriptors: amendments; biological activity in soil; chicory; composts; fertilizers; humates; humic acids; lignite; protected cultivation

Organism Descriptors: Cichorium intybus

Geographic Names: Italy

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/15 (Item 9 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0006328584 **CAB Accession Number:** 19900300545

The efficiency and use of fossil shell fertilizer (5). Comparison of efficiency of fertilizer and organic materials and effect of addition.

Hasegawa, K.

Ishikawa Agricultural Experiment Station, Ishikawa, Japan.

Agriculture and Horticulture vol. 63 (11): p.1296-1300

Publication Year: 1988

ISSN: 0369-5247

Language: Japanese **Record Type:** Abstract

Document Type: Journal article

In pot trials, the number of roots produced by Japanese white radishes

Save-2009-06-19_130357

was increased by application of **fossil shell fertilizer** but was little affected by a **fertilizer** containing lignin and **humic acids**. The **fossil shell fertilizer** also increased the B content and the root yield. In trials with spinach, the dry matter yield and nitrogen uptake were increased to a similar extent by slaked lime or **fossil shell fertilizer**. Slaked lime increased soil pH and soil N content, while **fossil shell fertilizer** increased soil P content.

Descriptors: Amendments; assessment; boron; **fertilizers**; Lime; nutrition; Radishes; root crops; Spinach; types; utilization; vegetables
Organism Descriptors: Brassicaceae; Chenopodiaceae; Raphanus sativus; Spinacia oleracea

43/7,DE/16 (Item 10 from file: 50)
DIALOG(R)File 50: CAB Abstracts
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0006044435 **CAB Accession Number:** 19891929652
Fertilizer and method.

Robinson, E. C.
P.O. Box 27, Paragonah, UT 84760, USA.
United States Patent
(US 4,743,287): 9pp.
Publication Year: 1988
Issued May 10, 1988. Applied Sep. 29, 1982.
Language: English **Record Type:** Abstract
Document Type: Miscellaneous

A **fertilizer** is produced by combining waste organic material, inorganic minerals and nutrients and a nitrogen base whereby the resulting **humic acid fertilizer** product will have a desired chemical makeup by weight and a selected pH. The waste organic material is selected from low **humic acid** materials including livestock and poultry manure, sewage sludge, separated garbage, cotton gin trash, fruit, nut, or vegetable cannery wastes, wood and pulp wastes, spent mushroom compost, methane and alcohol solid wastes, lignite, **leonardite**, humate, and **coal**. The organic is analyzed to determine the composition of major inorganic plant nutrients, specifically nitrogen, phosphate, potash and sulfur. Additives are combined with the organic material that contain measured quantities of the major nutrients as needed based on the organic material analysis and taking into account inorganic materials contributed by **acids** and bases to be used subsequently. A measured quantity of water is added to the mixture which is then deposited in a reactor and the reactor is sealed to the atmosphere. An **acid**, either sulfuric or phosphoric, is added and mixed therewith to provide hydrolysis of the constituents by way of a drastic pH change. At this stage, the mix temperature and pressure are elevated in response to the **acid** reaction and the pH is 1.5. This initiates the breakdown of the organic material to **humic acid** and formation of molecular clusters of plant nutrients around the **humic**

molecules. A measured quantity of a base material, usually aqua or anhydrous ammonia, is added to adjust the pH to that of the final **fertilizer**, usually 4-7. The pressure is maintained at ≤ 30 psi and the temperature at ≤ 280 (deg)F within the reactor to complete the reaction and molecular bonding. The finished mix is then dried and granulated or liquefied to a pumpable slurry. When the selected organic material has a high lignin or cellulose content, the required hydrolysis can be accomplished by first bringing the mix to a pH of 13-14 using the base and then adjusting the pH with the **acid**. [TVA].

Descriptors: Fertilizer technology; humates; manufacture; Organomineral fertilizers; patents

Dialog eLink: **USPTO Full Text Retrieval Options**

43/7,DE/17 (Item 11 from file: 50)

DIALOG(R)File 50: CAB Abstracts

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0004983129 CAB Accession Number: 19800704907

Elemental composition of barley and ryegrass grown on acid soils amended with scrubber sludge.

Walker, W. J.; Dowdy, R. H.

Dep. of Soil Sci., Minnesota Univ., St. Paul, MN 55108, USA.

Journal of Environmental Quality vol. 9 (1): p.27-30

Publication Year: 1980

ISSN: 0047-2425

Language: English **Record Type:** Abstract

Document Type: Journal article

A glasshouse study assessed barley and fodder rye (*Secale cereale*) growth on 2 acid soils amended with high-lime scrubber sludge from a coal-fired, power-generating plant. The soils used were a coarse sand (pH 4.8) and a silt loam, (pH 5.7) with sludge application rates of 0-100 g sludge/kg soil. Above-ground DM production for 6 wk of growth was depressed for barley and forage rye when applications exceeded 12.5 g sludge/kg soil. Soil pH increased from 4.8 to 7.2 in the coarse sand and from 5.7 to 7.6 in the silt loam with applications of 100 g sludge/kg soil. Yield reductions for barley and forage rye were attributed to high conc. of tissue B, which ranged from 12 μ g/g in untreated controls to 150 and 2000 μ g/g on soils receiving 6.25 and 100 g sludge/kg soil, resp. Tissue Se increased with added sludge, while Mn and Zn contents decreased, without reaching toxic or deficiency levels, resp. Tissue Cd, Cu, P and Pb levels fluctuated from soil to soil and crop to crop without approaching deficiency or toxicity levels. 21 ref.

Descriptors: barley; liming materials; plant composition; responses; rye; scrubber sludge; soil; trace elements

Organism Descriptors: *Hordeum*; *Hordeum vulgare*; *Secale cereale*

Geographic Names: Minnesota; USA

43/7,DE/18 (Item 1 from file: 315)
DIALOG(R)File 315: ChemEng & Biotec Abs
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412296 CEABA Accession No.: 1992-05-006768 Document Type: Journal

Utilization of residues from coal power plants in the nature

Original Title: Rueckstaende aus Kohlekraftwerken in der Natur verwerten
Author: Peters, F

Publication: Umwelt, Bonn , **Volume:** 22 , **Issue:** 3 , **Pages:** 121-123

CODEN: UMWTAV **ISSN:** 0343-1460

Availability: C19920506768

Publication Year: 1992 **Language:** German

Abstract(English): Ecological utility of residues from coal power plants is presented. Possibilities of applying flue ashes retained in flue gas purification plants and gypsum from flue gas desulphurization plants as fertilizers, to improve the sulphur content of soils, are discussed. Utility of mixtures of ash and gypsum in improving acid soils in forestry is considered. Experimental results are examined and necessity of further studies is emphasized. Perspectives of utilizing as fertilizers also other residues, as ammonium sulphate or calcium carbonate containing waste products, are shown.

Abstract(German): Ecological utility of residues from coal power plants is presented. Possibilities of applying flue ashes retained in flue gas purification plants and gypsum from flue gas desulphurization plants as fertilizers, to improve the sulphur content of soils, are discussed. Utility of mixtures of ash and gypsum in improving acid soils in forestry is considered. Experimental results are examined and necessity of further studies is emphasized. Perspectives of utilizing as fertilizers also other residues, as ammonium sulphate or calcium carbonate containing waste products, are shown.

No. of pages: 3

Descriptors (English): AMMONIUM SULFATE; COAL COMBUSTION; ENVIRONMENTAL RELEASE; FERTILIZER PRODUCTION; FLUE GAS DESULFURIZATION; FLUE GAS PURIFICATION; FORESTRY INDUSTRY; GYPSUM; POWER PLANT; RECYCLING; SOIL IMPROVEMENT; WASTE RECOVERY; WASTE UTILIZATION

Descriptors (German): ABFALLVERWERTUNG; ABGASREINIGUNG; AMMONIUMVERBINDUNG; BODEN; DUENGEMITTELHERSTELLUNG; ENTSCHWEFELN; GIPS; KOHLE; KRAFTWERK; RAUCHGAS; RECYCLING; REINIGEN; SULFAT; UMWELT; VERBRENNUNG; VERSCHMUTZEN; WALD

Publication Year: 1992

Dialog eLink: [Order File History](#)

43/7,DE/19 (Item 1 from file: 347)
DIALOG(R)File 347: JAPIO

Save-2009-06-19_130357

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03666282 UTILIZING AGENT FOR PHOSPHORIC ACID COMPOUND IMMOBILIZED IN SOIL

Pub. No.: 04-031382 [JP 4031382 A]

Published: February 03, 1992 (19920203)

Inventor: SHOJU YUTARO

KAWAMURA ITSUO

Applicant: KOU EI KAGAKU KOU GIYOU KK [422553] (A Japanese Company or Corporation), JP (Japan)

Application No.: 02-134576 [JP 90134576]

Filed: May 24, 1990 (19900524)

JAPIO Class: 13.2 (INORGANIC CHEMISTRY -- Inorganic Compounds)

ABSTRACT

PURPOSE: To accomplish fertilizer cost reduction by applying to soil either single substance or mixture of at least two substances selected from compounds with chelating activity among water-soluble polycarboxylic acids and their salts so as to result in a specified amount of active ingredient.

CONSTITUTION: Either single substance or mixture of at least two substances selected from compounds with chelating activity among water-soluble polycarboxylic acids and their salts such as citric acid, gluconic acid, tartaric acid, oxalic acid, ethylenediaminetetraacetic acid, humic acid, propionic acid and their ammonium salts, potassium salts and sodium salts is dissolved in water into an aqueous solution with a concentration of 0.01-5wt.% and a pH of 5-7 or so. This aqueous solution, as utilizing agent, is applied to a farmland provided with a phosphoric acid compound, at such an amount as to be 100-1000g or so per m(sup 2) in terms of active ingredient, thus converting such poorly soluble phosphoric acid compound present in the soil into a water-soluble phosphoric acid compound absorbable for plants.

Dialog eLink: Order File History

43/7,DE/20 (Item 2 from file: 347)

DIALOG(R)File 347: JAPIO

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01791022 GREENS-PLANTING WORK FOR SLOPE

Pub. No.: 61-005122 [JP 61005122 A]

Published: January 10, 1986 (19860110)

Inventor: IIDA TAKENORI

Applicant: DIA RIYOKUSAN KK [000000] (A Japanese Company or Corporation), JP (Japan)

Application No.: 59-124644 [JP 84124644]

Utilization of residues from coal power plants in the nature

Filed: June 18, 1984 (19840618)

JAPIO Class: 27.1 (CONSTRUCTION -- Earth Work); 11.1 (AGRICULTURE -- Agriculture & Forestry)

JAPIO Keyword: R082 (CONSTRUCTION -- Soil Conditioners)

ABSTRACT

PURPOSE: To raise the efficiency of operations for greens-planting work for slope by a method in which a mixture composed of seeds, **fertilizer**, soil, nutrients, soil stabilizer, and fluidizer is mixed with a specific material to obtain a base material for greens-planting work, and seeds of tuff, grass, or tree are sprayed onto the base material on the slope.

CONSTITUTION: Livestock wastes which serve to activate soil bacteria and accelerate the absorption of nutrients are mixed with garlic extract, a humectant, specific soil bacteria, natural **humic acid**, shell **fossil**, etc., to obtain a base material. The base material is further mixed with a solidifying agent (Diaresin coat), a stabilizer (Soil bond), a fluidizer (Smooth one), etc. Seeds of tuff, grass or tree are sprayed onto the target positions of a slope whose ground surface is exposed for greens-planting work. Soil which is satisfied with water holding capacity, nutriment and soil structure necessary for the germination and growth of plants can thus be obtained, and fixation and durability of greens-planting work can be secured.

43/7,DE/21 (Item 1 from file: 953)

DIALOG(R)File 953: Ei EnCompassPat(TM)

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0416008 **API Document No.:** 200514999 **Derwent WPI Accession No.:**

05-286456

Biochemical gas producing and carbonizing integrated treatment process for house refuse

Patent Assignee: WU T

Patent (CC,No,Date): CN 1563798 050112

International Pat Class: C12M-001/107; F23G-005/00; F23G-005/02

API Bulletin Headings: NON-FOSSIL FUEL SOURCES; PETROLEUM SUBSTITUTES

Abstract:

NOVELTY - Biochemical life garbage treating process to produce gas and carbonize includes the following steps: sorting out iron, wood block and plastic from garbage; crushing the residual material; heating and biochemically treating under sealing state to deactivate microbe and deodorize; heating and anaerobically treating to produce and collect marsh gas fuel; curing secondarily the residual material, drying, crushing and sieving; heating to carbonize oversize to produce gas fuel and solid material for making brick or cement; and utilizing the undersize directly as **humic** soil or in producing composite **fertilizer**. The process has full utilization of the material, no secondary pollution and other advantages, may be used in treating life garbage, water

processing sludge and other mixed garbage. (Dwg.No.0/0)

Index Terms: ANAEROBIC MICROORGANISM; BIOCHEMICAL REACTION; BIOGAS; BLOCK; BRICK; CEMENT ; COKING; CONSTRUCTION MATERIAL; CRUSHING; CURING; DEACTIVATION; DEODORIZING; DRYING; FERROUS ALLOY; FERTILIZER; GAS; *GASIFICATION; HEATING; HOUSEHOLD; HUMIC ACID; *MANUFACTURED GAS-*P; MICROORGANISM; MIXTURE; ORGANIC MATTER; PHYSICAL SEPARATION; PLASTIC-A; SEALING; SIZE REDUCTION; SLUDGE; SOIL (EARTH); SOLID; *SOLID WASTE-*A; SORTING; TREATING; WASTE DERIVED; *WASTE DISPOSAL; *WASTE MATERIAL-N*A; WATER; WETLAND; WOOD-A

43/7,DE/22 (Item 2 from file: 953)

DIALOG(R)File 953: Ei EnCompassPat(TM)

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0356102 API Document No.: 200301846 Derwent WPI Accession No.:
02-723155

Preparation of mixture of aspartic acid and salt of aspartic acid, for preparing imide containing polyamino acids, involves drying solution comprising salt of aspartic acid having cation that volatilizes during drying

Patent Assignee: FOLIA INC

Patent (CC,No,Date): WO 200262871 020815

Designated States: AE; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BR; BY; BZ; CA; CH; CN; CO; CR; CU; CZ; DE; DK; DM; DZ; EC; EE; ES; FI; GB; GD; GE; GH; GM; HR; HU; ID; IL; IN; IS; JP; KE; KG; KP; KR; KZ; LC; LK; LR; LS; LT; LU; LV; MA; MD; MG; MK; MN; MW; MX; MZ; NO; NZ; PH; PL; PT; RO; RU; SD; SE; SG; SI; SK; SL; TJ; TM; TR; TT; TZ; UA; UG; US; UZ; VN; YU; ZA; ZW; AT; BE; CH; CY; DE; DK; EA; ES; FI; FR; GB; GH; GM; GR; IE; IT; KE; LS; LU; MC; MW; MZ; NL; OA; PT; SD; SE; SL; SZ; TR; TZ; UG; ZM; ZW

International Pat Class: A61K-007/075; C08G-073/10; C09J-179/08; C11D-003/37; D21H-017/54

API Bulletin Headings: ENVIRONMENT, TRANSPORT & STORAGE; HEALTH & ENVIRONMENT; LAND POLLUTION; LUBRICANTS AND INDUSTRIAL OILS; MISC. AND SPECIALTY CHEMICALS; OIL FIELD CHEMICALS; PETROLEUM PRODUCTS; PETROLEUM REFINING AND PETROCHEM; TRIBOLOGY; WATER POLLUTION CONTROL

Abstract:

NOVELTY - Preparation of mixture of aspartic acid and a salt of aspartic acid, involves drying a solution of aspartic acid having a non-volatilizable cation and a salt of aspartic acid having a cation which at least partially volatilizes to provide free aspartic acid during drying.DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for:(1) a mixture of aspartic acid and salt of aspartic acid; (2) a solution of salt of aspartic acid having non-volatilizable cation and salt of aspartic acid having a volatilizable cation; (3) a method for preparing a copolymer containing copolymerized aspartate units and succinimide units which involves polymerizing copolymer mixture of aspartic acid and aspartic acid salt, by heating. The comonomer mixture is prepared by drying a solution of aspartic acid having

non-volatilizable cation and salt of aspartic acid having volatilizable cation; (4) a copolymer containing copolymerized aspartate units and succinimide units; (5) a composition for use in a method requiring a polymeric material, comprising copolymer and an acceptable adjuvant; (6) a method for treating hair or fibers; (7) a method for treating water; (8) a method for applying a coating comprising a copolymer, on an article; (9) a method for preparing a detergent composition; (10) a method for preparing cosmetics; (11) a method for preparing a cementitious material; (12) a method for reducing scaling in water-containing composition; (13) a method for reducing corrosion on surface; (14) a method for preparing paper product; (15) a super absorbent material; and (16) a method for gelling or thickening a composition. USE - For preparing copolymers used for producing novel imide containing polyamino acids which are used for antifreezes, antiscalants, boiler water, cooling water, desalinators, fruit/sugar extraction, oilfield, reverse osmosis membranes, antistatics, adhesives, bio-absorbable medical devices, biological coatings, antiproteolytic, antihydrolytic, cationic toxin suppressants, cell and tissue encapsulation, cellular adhesion inhibitors and promoters, coatings for food materials, immunosuppressants, pharmaceutical carriers, blood plasma expanders, botanical additives, herbicide absorption enhancers, plant growth enhancers, plant growth factors, plant freshness preservatives, carriers of therapeutic agents, chelants, sequestrants, chromatographic agents, conditioners, controlled release, biocides, drugs, flavors, fragrances, corrosion inhibitors, cosmetics, detergents and cleansers, anti-redeposition agents, builders, color protectants, dye-transfer inhibitors, fragrance retaining aids, liquid laundry dispersants, powdered laundry dispersants, soil release agents, dispersants, cement, ceramic and metal particles, coal, drilling mud, inks, milling, pigments, dye-levelers, emulsion stabilizers, fertilizers, fiber treatment agents, carpets, clothes, foaming agents, hair products, flame and fire retardants, flocculents, foam inhibitors, foam stabilizers, fungicides, gas hydrate inhibitors, gelling materials, agricultural uses, fibers, films, food related uses, sanitary articles, water sealing agents, hair curling agents, strengtheners, humectants, industrial coatings, binders, removable coatings, smoothing, glossing agents, spreading, adhesion agents, insecticide enhancers, ion exchange resins, leather auxiliary compounds, lipid lowering agents, lubricants, metal cleansing fluids, metal working fluids, microbiocides, molded material components, odor control substances, oil absorbents, paper products, dewatering agents, strength enhancers, suspension agents, shampoos and lotions, surfactants, tartar control, thickening agents, tissue-engineering scaffolding and viscosity modifiers. ADVANTAGE - The mixture of aspartic acid and salt of aspartic acid, enables to form true copolymer having significant amount of both amide and imide units. The copolymers have favorable water solubility, and can be economically and ecologically used for wide applications. The copolymers enable to form biodegradable polymer or polymer adjusted for specific use. The mixture of aspartic acid and salt of aspartic acid is clear, glassy solid if dried in vacuum or oxygen free atmosphere, and pale yellow and glassy when dried in oxygen atmosphere. Dwg.0/17 (75pp Dwg.No.0/17)

Index Terms: *ANTIFREEZE; C4-P; CATION; *DRILLING FLUID; DRYING; ION; *LUBRICANT/INDUSTRIAL OIL; *METALWORKING LUBRICANT; MIXTURE; MONOAMINE-P; MULTICARBOXYLIC ACID-P; PHYSICAL SEPARATION; SATURATED CHAIN-P; SINGLE STRUCTURE TYPE-P; SOLUTION; STRAIGHT CHAIN-P

43/7,DE/23 (Item 3 from file: 953)

DIALOG(R)File 953: Ei EnCompassPat(TM)

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0302536 API Document No.: 200001236 Derwent WPI Accession No.:
00-118354

Anaerobic processing of organic waste and production of a biogas

Patent Assignee: INNOVATIVE UMWELTTECHNIK GMBH

Patent (CC,No,Date): EP 974643 000126

Designated States: AL; AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI; LT; LU; LV; MC; MK; NL; PT; RO; SE; SI

International Pat Class: C12M-001/107

API Bulletin Headings: NON-FOSSIL FUEL SOURCES; PETROLEUM SUBSTITUTES

Abstract:

NOVELTY - The anaerobic degradation of organic waste is carried out by mixing fresh material with a fermentation material and a high content of dry matter. After the material has been added, the matter is dried, circulated and brought into the methane formation zone, preferably at half the height of the substrate layer.DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for an organic waste processing assembly with a charging circuit (2) opening over the substrate layer (10) in the reaction vessel (1).USE - The method is useful for the reduction and stabilization of waste volume, the return of organic matter to the soil as a **fertilizer**, to compensate for the loss of humus, and to exploit the energy potential of a developed biogas.ADVANTAGE - The system effectively processes organic waste, even when there is a high content of solids.DESRIPTION OF DRAWING(S) - The drawing shows the layout of the organic waste processing assembly.reaction vessel 1charging circuit 2mixer 6heat exchanger 9substrate layer 10conveyor screws 11barrier slides 12,14intermediate vessel 13water extraction station 19conveyors 24,31,33water extraction station outlet 30recirculation circuit 32
Dwg.1/1 (13pp Dwg.No.1/1)

Index Terms: ANAEROBIC MICROORGANISM; *BIOCHEMICAL REACTION; *BIOGAS-*P; *C1-*P; COMPOSITION; CONCENTRATION; CONVEYOR; DECOMPOSITION; DRY; DRYING; FASTENER; *FERMENTATION; FERMENTER; **FERTILIZER**; HEAT EXCHANGER; **HUMIC ACID**; *HYDROCARBON-*P; INJECTION; INORGANIC SOLVENT; MAN; *METHANE-*P; MICROORGANISM; MIXER; MIXING; ORGANIC MATTER-NA; ORIFICE; OUTLET; PHYSICAL SEPARATION; REACTOR; RECYCLING; *SATURATED CHAIN-*P; *SINGLE STRUCTURE TYPE-*P; SLIDE; SOIL (EARTH); SOLIDS CONTENT; SOLVENT; SOLVENT EXTRACTION; STABILIZATION (SEPARATION); WASTE MATERIAL-A; WATER

43/7,DE/24 (Item 4 from file: 953)
DIALOG(R)File 953: Ei EnCompassPat(TM)
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0195568 API Document No.: 9040619 Derwent WPI Accession No.: 90-023784
Compsn. for fertilising, decontaminating and improving soil structure -
is hydraulically hardened mixt. of gypsum and ash from burning lignite,
opt. with other nutrient sources

Patent Assignee: Bannwarth H

Patent (CC,No,Date): DE 3921805 900118

International Pat Class: C02F-001/00; C05D-003/00; C05G-003/00;
C09K-003/00; C09K-017/00

API Bulletin Headings: AIR POLLUTION; CONSERV-TRANSP-STOR-ENG; HEALTH &
ENVIRONMENT; SOLID WASTES

Abstract:

Compsn. for improving contaminated and defective soils is a mixt. of
gypsum and basic ca-contg. **fertiliser** material (A), opt. together with
other nutrient sources and water for mixing. The gypsum is esp. from
combustion gas desulphurisation operations but can also be from H3PO4
mfr. or other industrial processes. (A) is e.g. quick, slaked or
dolomitic-lime, pref. any sort of ash from burning lignite, opt. combined
with electro-filter, fly or wet ashes. USE/ADVANTAGE - Compsn. is applied
to depleted, deeply acidified or compacted soils, or those contaminated
by **acid**, heavy metals, hydrocarbons, nitrogen cpds. or pollutants. Among
its pref. effects are : regenerating organic and inorganic
ion-exchangers; elimination of Al toxicity; **acid** neutralisation (better
than lime used alone); improvement in soil structure, sustained release
of nutrients (including many trace elements). Generally the comps. can
be used to remove **acids** from the air or water. The comps. is made from
waste materials of power stations so is inexpensive and solves a disposal
problem. @(18pp Dwg.No.0/0)@

Index Terms: ACIDIC; ACIDITY/BASICITY; ACTIVATION; AIR; ALUMINUM; ASH;
BASIC; BED; BLOCK; CALCIUM; CALCIUM HYDROXIDE; CARBONATE MINERAL; COAL;
COMBUSTION; COMPOSITION; COMPOST; COMPOUNDS; CONCENTRATION; COST;
DETOXIFICATION; DOLOMITE (MINERAL); ECONOMIC FACTOR; ELECTROFILTER;
FERTILIZER; FILTER; FLUID BED; FLUIDIZED SYSTEM; FLY ASH; FOREST; GROUP
IIA; GROUP IIIA; GROUP VA; GROUP VIA; GROWTH; *GYPSUM; HEALTH/DISEASE ;
HEATING FUEL; HEAVY METAL; HYDROCARBON; HYDROXIDE; IDE; INDUSTRIAL PLANT;
INJURY; ION EXCHANGER; LIGNITE; LIME; LIQUID; MANURE; METAL; *MINERAL;
MIXING; MIXTURE; NEUTRALIZATION; NITROGEN; OXYGEN; PARTICLE; PELLET;
PERMEABILITY; PHASE CHANGE; PHYSICAL PROPERTY; POLLUTANT; POLLUTION
CONTROL ; POWDER; POWER PLANT; PREVENTION; REGENERATION; SEPARATION
EQUIPMENT; SOIL (EARTH); SOIL POLLUTANT; *SOIL STABILIZATION; *SOLID
WASTE; SOLIDIFICATION; TOXIC EFFECT; TRACE; USE; *WASTE DISPOSAL; *WASTE
MATERIAL; WASTE WATER; WATER; WET

? T S41/34,K/1-27

Dialog eLink: [Order File History](#)

41/34,K/1 (Item 1 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0019071928

WPI Acc no: 2009-J14871/200935

Effervescent composition used for cash crop, gardening, lawn and afforestation of city, contains plant nutrient substance, and gas generator which generates gas on contact with water

Patent Assignee: SHENZHEN LANGTAI BIOTECHNOLOGY CO LTD (SHEN-N)

Inventor: ZHANG R

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
CN 101423443	A	20090506	CN 200810217379	A	20081121	200935	B

Priority Applications (no., kind, date): CN 200810217379 A 20081121

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
CN 101423443	A	ZH	16	0	

Alerting Abstract CN A

NOVELTY - An effervescent composition contains plant nutrient substance, and gas generator which generates gas on contact with water.

DESCRIPTION - An INDEPENDENT CLAIM is included for preparation of effervescent composition.

USE - Effervescent composition is used for cash crop, gardening, lawn and afforestation of city.

ADVANTAGE - The effervescent composition has excellent moisture resistance, and is in polygonal tables, balls and elliptic or polyhedral granules form.

Technology Focus

ORGANIC CHEMISTRY - Preferred Substances: The plant nutrient substance is potassium dihydrophosphate. The gas generator is carbonate or bicarbonate compound chosen from lithium carbonate, sodium carbonate, potassium carbonate, ammonium carbonate, magnesium carbonate, calcium carbonate, lithium bicarbonate, sodium bicarbonate, potassium bicarbonate or ammonium bicarbonate, preferably sodium bicarbonate. Preferred Composition: The effervescent composition further contains acid chosen from formic acid, acetic acid, propanoic acid, butanoic acid, pentanoic acid, hexanoic acid, propane diacid, phosphoric acid, condensed phosphoric acid, pyrophosphoric acid, tartaric acid, fumaric acid, malic

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acid, gluconic acid, maleic acid, boric acid, butane diacid, hexanedioic acid, amino acid, humic acid, butene diacid, ascorbic acid, citric acid and basic salt, growth regulating agent chosen from indopropionic acid, indole butyric acid, naphthalene acetic acid, sodium naphthalene acetate, 2,4-D,4-iodo phenoxy acetic acid, 4-chloro phenoxy acetic acid, gibberellic acid (GA3, GA4 and GA12), zeatin, kinetin, 6-benzyladenine, ethephon, abscisic acid, cycocel, maleic hydrazide, triisobutyl aluminum (tiba), 2,3,5-triiodobenzoic acid, paclobutrazol, thidiazuron, mepiquat chloride, forchlorfenuron, maleic hydrazide, flumetralin, triacontanol, brassinolide, daminozide, sodium para-nitrophenolate, potassium para-nitrophenolate, sodium o-nitrophenolate, potassium o-nitrophenolate, ammonium o-nitrophenolate, 2,4-dinitrophenolate sodium, 2,4-dinitrophenolate potassium, 2,4-dinitrophenolate ammonium, 5-nitro-o-methoxy sodium phenolate, 5-nitro-o-methoxy potassium phenolate, 5-nitro-o-methoxy ammonium phenolate, hexanoic acid 2-(diethylamino)ethyl ester (DA-6), 3-(alpha -pyridyl)-propanol, ribonucleotide, 1-dimethylmorpholinium chloride, choline chloride, psoralen, titanium citrate, sintofen and 2-(3,4-dichlorophenoxy) triethylamine, and additives such as moist dispersing agent (in weight%) (0-50), disintegrating agent (0-80), binder (0-15), filler (0-90), dyeing agent (0-5) and lubricant (0-10). Preferred Agents: The moist dispersing agent is ethanol, saponin, sulfite liquor, hydrolyzate of animal waste, alkyl sulfate, alkyl sulfonate, alkylbenzene sulfonate, alkyl phosphate, alkene sulfonate, alkyl sulfonic acid alkali metal salt, alkylphenol polyoxyethylene sulfate, alkylphenol polyoxyethylene ether succinate sulfonate, alkylphenol polyoxyethylene ether formaldehyde condensate, butane diacid semi-ester sulfonate fatty amide, N-methyl taurocholic acid sodium salt, fatty alcohol polyethenoxy ether sodium sulfate, lignin-sulfonate, N-nitrosamines (NNO), alkylphenol polyethenoxy ether sulfate, alkyl naphthalene sulfonate, petroleum sodium sulfonate, alkyl naphthalene biphenyl sodium sulfonate, naphtholsulfonic acid formaldehyde condensate sodium salt, fatty alcohol polyethenoxy ether, alkyl naphthalene formaldehyde condensate, polycarboxylate or dibutyl naphthalene sulfonate. The disintegrating agent is ammonium soleplate, calcium chloride, alginic acid, edible salt, magnesium chloride, urea, swell soil, aluminum chloride, sodium sulfate, attapulgit, white carbon black, polyvinyl pyrrolidone, hydroxy propyl cellulose, microcrystalline cellulose, starch, modified starch, starch sodium glycollate, carboxymethyl starch sodium, cross-linked carboxymethyl starch sodium or carboxymethyl starch sodium. Preferred Components: The binder is carboxymethyl cellulose, polyvinyl alcohol, ethylvinyl alcohol, starch, dextrin, sucrose, syrup, maltose, glucose, polyvinylpyrrolidone (PVP), arabic gum, soy protein, armpit protein, bone glue, gelatin, sodium silicate, gypsum, shellac, asphalt, paraffin, polyvinyl acetate, polyvinyl alcohol, rosin, denatured polyacrylate sodium, polyethylene glycol, lignin, methyl cellulose, ethyl cellulose, polyacryl amide, hydroxypropyl cellulose, hydroxypropyl methylcellulose, polyethylene oxidized azo ketone, high-substituted hydroxypropyl cellulose, low-substituted hydroxypropyl cellulose or sodium carboxymethyl cellulose. The filler is one or mixture of kaolin, corn cob, soybean, tobacco, rice hull, sulfur, acorn, light calcium carbonate, bentonite,

activated clay, kieselguhr, white carbon black, attapulgite, clay, montmorillonite, pumice, argil, quicklime, magnesium lime, phosphorus lime, pyrophillite, calcite, dolomite, gypsum, sepiolite, silica, mica, talcum, peat, silica gel, starch, dextrin, glucose, mannitol, lactose, sucrose and calcium sulfate. The dye is two or more reddish brown, bright yellow, acid yellow, acid yellowish-brown, disperse blue, reactive blue and reactive bright red dye. The lubricant is two or more stearic acid, stearate, hydrogenated vegetable oil, polyoxyethylene monostearate, light mineral oil, polyethylene glycol, boric acid, sodium chloride, sodium benzoate, sodium acetate, sodium oleate, sodium lauryl sulfate, magnesium lauryl sulfate, polyoxyethylene sodium lauryl sulfate, hexanedioic acid, boletic acid, triacetyl glycerine, sodium carboxymethyl starch and talcum powder.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05G-0003/00	A	I	F		20060101
C05G-0003/00	C	I			20060101

Original Titles: Effervescent composition for water-soluble **fertilizer** and preparation method thereof **Technology Focus** ...acid, hexanoic acid, propane diacid, phosphoric acid, condensed phosphoric acid, pyrophosphoric acid, tartaric acid, fumaric acid, malic acid, gluconic acid, maleic acid, boric acid, butane diacid, hexanedioic acid, amino acid, humic acid, butene diacid, ascorbic acid, citric acid and basic salt, growth regulating agent chosen from... **Extension Abstract** Original Publication Data by Authority Argentina **Publication No. Original Abstracts:** The invention claims an effervescent composition for water-soluble **fertilizer** and preparation method thereof. The effervescent composition comprises one or several plant nutrient substances and... **Claims:** acid, hexanoic acid, propane diacid, phosphoric acid, condensed phosphoric acid, pyrophosphoric acid, tartaric acid, fumaric acid, malic acid, gluconic acid, maleic acid, boracic acid, butane diacid, hexanedioic acid, amino acid, humic acid, butene diacid, ascorbic acid, citric acid and basic salt...

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41/34,K/2 (Item 2 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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0018454446

WPI Acc no: 2008-N74785/200880

Calcareous granulated material for e.g. fertilizer comprises calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary

Patent Assignee: DRYTECH YG (DRYT-N); NIPPON KUDO KOGYO KK (NIKU-N); TELNITE KK (TELN-N); TOCHIGI KEN (TOCH-N)

Inventor: IKEJIMA T; ISO F; KOBAYASHI A; KOMAGATA T; ONO A; SAKURAI H; TAMURA Y; YOKOTSUKA A

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 2008247998	A	20081016	JP 200788574	A	20070329	200880	B

Priority Applications (no., kind, date): JP 200788574 A 20070329

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
JP 2008247998	A	JA	15	0	

Alerting Abstract JP A

NOVELTY - A calcareous granulated material contains mixed and granulated calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary.

DESCRIPTION - An INDEPENDENT CLAIM is included for manufacture of calcareous granulated material involving mixing, and granulating calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary.

USE - Calcareous granulated material for soil improvement material, fertilizer or snow melting material (all claimed).

ADVANTAGE - The calcareous granulated material does not generate odor problem, has high disintegration and granulation property, can be properly colored, formation of dust is suppressed and manufacture is easy.

Technology Focus

AGRICULTURE - Preferred Composition: The composition contains 0-5 wt.% aqueous binder and 0.1-10 weight parts suspension liquid with respect to 100 weight parts calcareous powder. Coloring matter is organic or inorganic pigments e.g. iron black, red ocher, torch black, oily smoke or carbon black. Aqueous binder contains 0-5000 weight parts granulation auxiliaries with respect to 100 weight parts solid. Calcareous powder contains limestone, shell fossil, shellfish shell or dolomite as main component then pulverized to ≤ 1 mm. Humic acid salts were extracted from low rank coals e.g. soil, lignite, wood coal, weathered coal,

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leonadites, grass peat and peat which contains alkali metal salts and/or polymeric organic acid ammonium salt obtained by oxidation decomposition using oxidizing agent e.g. polymeric organic acid obtained from settling with acidic solution or nitric acid. Granulation auxiliary is alcoholic fermentation waste liquid, yeast fungus fermentation waste liquid, amino acid fermentation waste liquid, lactic acid fermentation waste liquid, caramel manufacture waste liquid, pulping waste liquor, lignin type compound, processing starch, cellulose type compound, treacle or lignin. Suspension liquid contains 100 weight parts coloring matter and 0.1-100 weight parts humic acid salts.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05D-0003/00	A	I	L	B	20060101
C05G-0003/00	A	I	L	B	20060101
C09K-0017/02	A	I	L	B	20060101
C09K-0017/06	A	I	L	B	20060101
C09K-0017/14	A	I	L	B	20060101
C09K-0017/32	A	I	L	B	20060101
C09K-0017/42	A	I	F	B	20060101
C09K-0003/18	A	I	L	B	20060101
C05D-0003/00	C	I		B	20060101
C05G-0003/00	C	I		B	20060101
C09K-0017/02	C	I		B	20060101
C09K-0017/14	C	I		B	20060101
C09K-0017/40	C	I		B	20060101
C09K-0003/18	C	I		B	20060101

Calcareous granulated material for e.g. fertilizer comprises calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary Alerting Abstract ...A calcareous granulated material contains mixed and granulated calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary. ...of calcareous granulated material involving mixing, and granulating calcareous powder, suspension liquid consist of water, humic acid salt and coloring matter and aqueous binder consist of humic acid salt and/or granulation auxiliary... USE - Calcareous granulated material for soil improvement material, fertilizer or snow melting material (all claimed... **Technology Focus** ...parts granulation auxiliaries with respect to 100 weight parts solid. Calcareous powder contains limestone, shell fossil, shellfish shell or

dolomite as main component then pulverized to ≤ 1 mm. **Humic acid** salts were extracted from low rank coals e.g. soil, lignite, wood coal, weathered coal, leonadites, grass peat and peat which contains alkali metal salts and/or polymeric organic acid ammonium salt obtained by oxidation decomposition using oxidizing agent e.g. polymeric organic acid obtained from settling with **acidic** solution or **nitric acid**. Granulation auxiliary is alcoholic fermentation waste liquid, yeast fungus fermentation waste liquid, amino acid fermentation waste liquid, lactic acid fermentation waste liquid, caramel manufacture waste liquid, pulping waste liquor, lignin type compound, processing starch... ..lignin. Suspension liquid contains 100 weight parts coloring matter and 0.1-100 weight parts **humic acid** salts. **Extension Abstract Title Terms .../Index Terms/Additional Words: FERTILISER;HUMIC;ACID; Class Codes** Original Publication Data by AuthorityArgentinaPublication No. ...**Original Abstracts:**is set as the wet manufacturing method which adds and mixes the liquid mixture of **humic acid** salts like **humic acid** potassium, the water suspension liquid to which a pigment like carbon black was disperse|distributed, and the aqueous|water-based binder which consists of **humic acid** salts or/and a granulation auxiliary, This mixed thing is granulated, It dries, The good-quality calcareous granulated material which can be utilized as a soil improvement material, a **fertilizer**, and a snow melting material by classifying is manufactured. Absence This invention belongs to the calcareous...
...**Claims:**a calcareous type|system|group powder The liquid mixture of the water suspension liquid to which **humic acid** salts were made to disperse|distribute a coloring matter, and the aqueous|water-based binder which consists of **humic acid** salts or/and a granulation auxiliary is added and granulated, The calcareous granulated material characterized...

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41/34,K/3 (Item 3 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0016017248

WPI Acc no: 2006-548878/200656

Plant nutrition and irrigation composition includes foliar fertilizers, salinity correctors, biostimulants or humic and fulvic acids in partial or total substitution of potassium nitrate

Patent Assignee: LAB DIET-ESTHETIC SA (DIET-N)

Inventor: BRENUY M M; MATA BRENUY M

Patent Family (7 patents, 112 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 20060169014	A1	20060803	US 2006334353	A	20060119	200656	B
ES 2257966	A1	20060801	ES 2005173	A	20050131	200656	E

WO 2006082268	A1	20060810	WO 2006ES40	A	20060130	200656	E
EP 1700835	A2	20060913	EP 2006380024	A	20060130	200660	E
ES 2257966	B1	20070701	ES 2005173	A	20050131	200746	E
ES 2288391	A1	20080101	ES 2005173	A	20050131	200819	E
			ES 200616	A	20060106		
ES 2288391	B1	20081216	ES 200616	A	20060106	200919	E

Priority Applications (no., kind, date): ES 2005173 A 20050131; ES 200616 A 20060104; ES 200616 A 20060106

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
US 20060169014	A1	EN	3	0	
WO 2006082268	A1	ES			
National Designated States, Original	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KN KP KR KZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW				
Regional Designated States, Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW				
EP 1700835	A2	EN			
Regional Designated States, Original	AL AT BA BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK NL PL PT RO SE SI SK TR YU				
ES 2288391	A1	ES			Addition to application ES 2005173

Alerting Abstract US A1

NOVELTY - Plant nutrition and irrigation composition comprises 94-96.6 wt.% water, 3.5-4 wt.% cellulose and 0.4-3.5 wt.% potassium nitrate. The composition includes foliar **fertilizers** or salinity correctors or biostimulants or **humic** and fulvic acids in partial or total substitution of potassium nitrate.

USE - For nutrition and irrigation of plants.

ADVANTAGE - The molecules of water and potassium nitrate are mechanically linked with the cellulose molecule. The composition at atmospheric temperature has a gelatinous consistency.

Technology Focus

ORGANIC CHEMISTRY - Preferred Composition: The foliar **fertilizers** are made up of different mixtures of nitrogen, phosphorus oxide, potassium oxide, magnesium oxide, boron, zinc, magnesium, molybdenum, iron, plus chelated micronutrients in a proportion in all cases of ≥ 0.5 wt.% of the

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composition. The corrector of salinity is preferably calcium oxide complexed by lignosulfonics and **heptagluconic acid** at 0.4-3.5 wt.% in total. The biostimulants are constituted of potassium phosphates equivalent to 60% of the phosphoric acid, or a mixture protein nitrogen plus free amino acids oligopeptides plus polypeptides proceeding from controlled hydrolysis without chloride, incorporating these elements into the composition at 0.4-3.5 wt.%. The **humic** and fulvic acids are preferably made up of layer deposits being previously sulfurized to modify their physical chemical properties to use for the fulvic or **fertilizer** irrigation, the incorporation of these acids at 0.4-3.5 wt.%. Preferred Components: The foliar **fertilizers** may have been chelated by EDTA, diethylene triamine penta acetic acid (DTPA), EDDHA (sic), boron and **heptagluconic acid**. The folic **fertilizers** are provided by different types of **clays** rich in all or part of the minerals.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
A01G-0009/10	A	I	L	B	20060101
C05C-0005/02	A	I	F	B	20060101
C05D-0003/02	A	I	L	B	20060101
C05F-0011/02	A	I	F	B	20060101
C05F-0011/02	A	I	L	B	20060101
C05G-0003/00	A	I	L	B	20060101
C05G-0003/00	A	I	F	B	20060101
C05G-0003/06	A	I	L	B	20060101
C05G-0005/00	A	I	L	B	20060101
C09K-0017/50	A	I	L	B	20060101
A01G-0009/10	A	I	L		20060101
C05G-0003/00	A	I	F		20060101
C05G-0003/06	A	I	L		20060101
C09K-0017/50	A	I	L		20060101
A01G-0009/10	C	I	L	B	20060101
C05C-0005/00	C	I	F	B	20060101
C05D-0003/00	C	I	L	B	20060101
C05F-0011/00	C	I	F	B	20060101
C05F-0011/00	C	I	L	B	20060101
C05G-0003/00	C	I	L	B	20060101
C05G-0003/00	C	I	F	B	20060101
C05G-0005/00	C	I	L	B	20060101
C09K-0017/40	C	I	L	B	20060101
A01G-0009/10	C	I			20060101
C05G-0003/00	C	I			20060101

C09K-0017/40	C	I			20060101	
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ECLA: C05C-005/02, C05D-003/02, C05F-011/02, C05G-003/00B10D

US Classification, Current Main: 71-024000

US Classification, Issued: 7124

Plant nutrition and irrigation composition includes foliar fertilizers, salinity correctors, biostimulants or humic and fulvic acids in partial or total substitution of potassium nitrate. Alerting Abstract ...4 wt.% cellulose and 0.4-3.5 wt.% potassium nitrate. The composition includes foliar fertilizers or salinity correctors or biostimulants or humic and fulvic acids in partial or total substitution of potassium nitrate. **Technology Focus** ORGANIC CHEMISTRY - Preferred Composition: The foliar fertilizers are made up of different mixtures of nitrogen, phosphorus oxide, potassium oxide, magnesium oxide, boron... ..of the composition. The corrector of salinity is preferably calcium oxide complexed by lignosulfonics and heptagluconic acid at 0.4-3.5 wt.% in total. The biostimulants are constituted of potassium phosphates... ..without chloride, incorporating these elements into the composition at 0.4-3.5 wt.%. The humic and fulvic acids are preferably made up of layer deposits being previously sulfurized to modify their physical chemical properties to use for the fulvic or fertilizer irrigation, the incorporation of these acids at 0.4-3.5 wt... ..Preferred Components: The foliar fertilizers may have been chelated by EDTA, diethylene triamine penta acetic acid (DTPA), EDDHA (sic), boron and heptagluconic acid. The foliar fertilizers are provided by different types of clays rich in all or part of the minerals. **Extension Abstract Title Terms** .../Index **Terms/Additional Words:** FERTILISER;HUMIC; **Class Codes** Original Publication Data by Authority Argentina Publication No. ...Original **Abstracts:** and irrigation of plants includes water, cellulose, potassium nitrate and at least one of foliar fertilizers, salinity correctors, biostimulants, humic acids and fulvic acids... ..**Claims:** 5% in weight of potassium nitrate, these improvements are characterized by the incorporation of foliar fertilizers or salinity correctors or biostimulantes or humic and fulvic acids in partial or total substitution of potassium nitrate.

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41/34,K/4 (Item 4 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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0015515211 Drawing available

WPI Acc no: 2006-079356/200608

Extraction of fulvic acid for production of agricultural/horticultural solution, by mixing humus material with water and separating solubilized

fulvic acid molecules from humin and humic acid molecules by ultrafiltration

Patent Assignee: BIOZ AGRI PROD INC (BIOZ-N); LONE KNIGHT LTD (LONE-N)

Inventor: KARR M C

Patent Family (4 patents, 106 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2006000073	A1	20060105	WO 2004CA935	A	20040623	200608	B
AU 2004320919	A1	20060105	AU 2004320919	A	20040623	200731	E
			WO 2004CA935	A	20040623		
EP 1797190	A1	20070620	EP 2004737874	A	20040623	200741	E
			WO 2004CA935	A	20040623		
US 20080216534	A1	20080911	WO 2004CA935	A	20040623	200861	E
			US 2008630277	A	20080104		

Priority Applications (no., kind, date): WO 2004CA935 A 20040623

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes												
WO 2006000073	A1	EN	41	2													
National Designated States,Original	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH																
	CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD																
	GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC																
	LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI																
	NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY																
	TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW																
Regional Designated States,Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH																
	GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT																
	RO SD SE SI SK SL SZ TR TZ UG ZM ZW																
AU 2004320919	A1	EN			PCT Application							WO 2004CA935					
					Based on OPI patent							WO 2006000073					
EP 1797190	A1	EN			PCT Application							WO 2004CA935					
					Based on OPI patent							WO 2006000073					
Regional Designated States,Original	DE																
US 20080216534	A1	EN			PCT Application							WO 2004CA935					

Alerting Abstract WO A1

NOVELTY - Extraction of molecules of fulvic acid from humus material comprising molecules of humin, humic acid and fulvic acid, involves:

- A. mixing the humus material with water to solubilize at least a portion of the molecules of fulvic acid; and

Utilization of residues from coal power plants in the nature

- B. separating at least a portion of the solubilized fulvic acid molecules from the humin molecules and from at least a portion of the humic acid molecules by ultrafiltration.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

1. production of agricultural or horticultural solution comprising fulvic acid molecules, which involves:
 - A. mixing the humus material with water to solubilize at least a portion of the fulvic acid,
 - B. filtering the mixture through a filtration apparatus-I (24) to retain particles or molecules having a molecular weight of at least 2500-12,500 Daltons and separate at least a portion of the fulvic acid molecules from at least a portion of the humic acid molecules, where the humin molecules are separated from the fulvic acid molecules before or during filtration of the mixture through the filtration apparatus-I, and
 - C. passing the filtrate through filtration apparatus-II (2), which retains at least a portion of the solubilized fulvic acid molecules and at least a portion of the water, to produce the solution;
2. solution produced by the method; and
3. fulvic acid product comprising fulvic acid molecules extracted from the humus material.

USE - For extracting fulvic acid molecules used in fulvic acid products having agricultural and horticultural applications. The fulvic acid concentrates or solutions are used as plant spray, soil additive or fertilizer additives.

ADVANTAGE - The methods for extracting fulvic acid molecules from humus material, provides yields having increased amounts of fulvic acid molecules with decreased amounts of iron, salts, silica and other organic compounds. The methods are environmentally sensitive and use less chemicals than base-acid extraction methods. By adding phosphate, iron and aluminum are effectively precipitated and removed, and purity of the end-product is improved.

DESCRIPTION OF DRAWINGS - The figure shows the flow chart of method for extracting fulvic acid molecules.

2 oxidized lignite

4 grinder

12 phosphate

14 alkali

24,26 filtration apparatus

Technology Focus

BIOLOGY - Preferred Microorganisms: The microorganisms are bacteria, protozoa, and/or fungi.

INORGANIC CHEMISTRY - Preferred Alkali: The alkali is selected from

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monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium carbonate, sodium bicarbonate, potassium bicarbonate, calcium carbonate, calcium-magnesium carbonate, potassium hydroxide and sodium hydroxide, and mixtures of two or more of monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium pyrophosphate, magnesium phosphate, calcium phosphate, sodium carbonate, sodium bicarbonate, potassium bicarbonate, calcium carbonate, calcium-magnesium carbonate, potassium hydroxide and sodium hydroxide, preferably monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium pyrophosphate, magnesium phosphate and/or calcium phosphate. Preferred Properties: The filtration apparatus retains particles or compounds having molecular weight of at least 8000 Daltons. The filtration apparatus-II retains substantially all of the fulvic acid molecules, which have passed through the first filtration apparatus. The filtration apparatus-II retains particles or molecules having molecular weight of at least 250-1000 Daltons, preferably at least 600 Daltons. The filtration apparatus-III retains particles or molecules having a molecular weight of more than about 12,500 Daltons. Substantially all of the humic acid molecules are retained by filtration apparatus-I and/or filtration apparatus-III.

MECHANICAL ENGINEERING - Preferred Apparatus: The filtration apparatus-I and III is ultrafiltration apparatus. The filtration apparatus-II is ultrafiltration or nanofiltration apparatus.

ORGANIC CHEMISTRY - Preferred Amount: The mixture in step (a) comprises humus material (3-35 wt.%).

Preferred Process: The humus material is ground before mixing with the water in step (a). The method further involves heating the mixture at 50-70(deg)C before the step (b) and performing digestion step between the steps (a) and (b). The mixture is allowed to settle before step (b). The mixture is filtered to remove particles of chosen size before filtration of the mixture through the filtration apparatus-I. The water in step (a) is provided in an aqueous solution, which is mixed with the humus material. The digestion step involves contacting microorganisms with the mixture in the presence of oxygen to oxidize unoxidized organic compounds in the humus material. The microorganisms are contacted with the mixture by adding compost, compost tea, soil and/or manure to the mixture. Air is bubbled through the mixture during the digestion step.

The step (c) involves separating at least a portion of the solubilized fulvic acid molecules from water by ultrafiltration or nanofiltration. The solubilized fulvic acid molecules are separated from humic acid molecules by filtering the mixture through filtration apparatus-I. The filtration apparatus retains a portion of water, and leaves the separated fulvic acid molecules from step (c) in a solution. The process further involves the step of reducing the water content of the solution obtained from step (c) to concentrate the solution, and drying the solution obtained from step (c) to leave the fulvic acid in a powder form. After step (a) and before filtering the mixture through the filtration apparatus-I, the pH of the mixture is adjusted to 5-8 by adding a phosphate (12) to the mixture to precipitate iron and aluminum in the

humus material as iron phosphate and aluminum phosphate.

The precipitated iron phosphate and aluminum phosphate are separated from the fulvic acid molecules. The mixture is filtered through a filtration apparatus-III before filtering through the filtration apparatus-I, where the filtration apparatus-III retains the humin molecules and at least a portion of the humic acid molecules while allowing the solubilized fulvic acid molecules and at least portion of the humic acid molecules to pass through. Phosphate (e.g. phosphoric acid), acid or alkali (14) is added to the mixture to adjust pH of the mixture to 5-8. Alternately, pH of the mixture is adjusted to at least 9.4 by the addition of an alkali.

Preferred Humus Material: The humus material comprises peat, oxidized lignite (2), peat moss, compost, brown coal, soil, pond sediment and bio-solid. The humus material comprises oxidized lignite e.g. leonardite. **Preferred Acid:** The acid is phosphoric acid, acetic acid, citric acid, hydrochloric acid and/or sulfuric acid.

ORGANIC CHEMISTRY - Preferred Alkali: The alkali is selected from monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium carbonate, sodium bicarbonate, potassium bicarbonate, calcium carbonate, calcium-magnesium carbonate, potassium hydroxide and sodium hydroxide, and mixtures of two or more of monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium pyrophosphate, magnesium phosphate, calcium phosphate, sodium carbonate, sodium bicarbonate, potassium bicarbonate, calcium carbonate, calcium-magnesium carbonate, potassium hydroxide and sodium hydroxide, preferably monopotassium phosphate, dipotassium phosphate, tripotassium phosphate, sodium pyrophosphate, magnesium phosphate and/or calcium phosphate. **Preferred Properties:** The filtration apparatus retains particles or compounds having molecular weight of at least 8000 Daltons. The filtration apparatus-II retains substantially all of the fulvic acid molecules, which have passed through the first filtration apparatus. The filtration apparatus-II retains particles or molecules having molecular weight of at least 250-1000 Daltons, preferably at least 600 Daltons. The filtration apparatus-III retains particles or molecules having a molecular weight of more than about 12,500 Daltons. Substantially all of the humic acid molecules are retained by filtration apparatus-I and/or filtration apparatus-III.

Extension Abstract

EXAMPLE - Water (900 gallons) was mixed with leonardite (1000 lbs), which was previously ground to an average particle size of 6 microns. Aged compost (50 lbs) was added to inoculate the mixture with microorganisms. The mixture was digested under aeration for 3 days. Then, potassium phosphate (20 lbs) was added to the mixture. The pH of the mixture was slowly increased to 5-8 by adding sodium bicarbonate (100 lbs) to precipitate iron and aluminum as insoluble phosphate compounds. The mixture was filtered using 200 mesh screen and settled for 6 days. The mixture was heated at 60(deg)C. The heated mixture was passed through 20 micron filter and retained solids were removed. The filtrate was passed through ultrafiltration membrane array (8000 Dalton). The retentate was removed and the filtrate was passed through

ultrafiltration membrane array (600 Dalton). The ultrafiltration membrane array (600 Dalton) retained 20% of the water as portion of the retentate and 80% passed through as portion of the filtrate. The filtrate from the ultrafiltration membrane was removed and retentate comprising fulvic acid molecules was retained. The retentate comprised dissolved solids (1.25 wt%) including fulvic acid molecules. The color of the retentate solution was dark brown, but diluted to a bright yellow color when diluted 4 times with water. The lack of red color in the retentate solution indicated absence of iron.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C12P-001/00			Main		"Version 7"
C05F-011/02			Secondary		"Version 7"
C05F-0011/00	A	I	F	B	20060101
C05F-0011/02	A	I	L	B	20060101
C12P-0001/00	A	I	F	B	20060101
C05F-0011/00	C	I		B	20060101
C05F-0011/00	C	I	F	B	20060101
C12P-0001/00	C	I		B	20060101

ECLA: C05F-011/02

US Classification, Current Main: 71-009000

US Classification, Issued: 719

Extraction of fulvic acid for production of agricultural/horticultural solution, by mixing humus material with water and separating solubilized fulvic acid molecules from humin and humic acid molecules by ultrafiltration ...Original Titles:METHOD FOR EXTRACTING FULVIC ACID MOLECULES... ..METHODE PERMETTANT D'EXTRAIRE DES MOLECULES D'ACIDE FULVIQUE... ..Method for Extracting Fulvic Acid Molecules... ..METHOD FOR EXTRACTING FULVIC ACID MOLECULES... ..METHODE PERMETTANT D'EXTRAIRE DES MOLECULES D'ACIDE FULVIQUE **Alerting Abstract** ... NOVELTY - Extraction of molecules of fulvic acid from humus material comprising molecules of humin, humic acid and fulvic acid, involves... .. humus material with water to solubilize at least a portion of the molecules of fulvic acid; and separating at least a portion of the solubilized fulvic acid molecules from the humin molecules and from at least a portion of the humic acid molecules by ultrafiltration. ... production of agricultural or horticultural solution comprising fulvic acid molecules, which involves: mixing the humus material with water to solubilize at least a portion of the fulvic acid, filtering the mixture through a filtration apparatus-I (24) to retain particles or molecules having... .. at least

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2500-12,500 Daltons and separate at least a portion of the fulvic acid molecules from at least a portion of the humic acid molecules, where the humin molecules are separated from the fulvic acid molecules before or during filtration of the mixture through the filtration apparatus-I, and passing... through filtration apparatus-II (2), which retains at least a portion of the solubilized fulvic acid molecules and at least a portion of the water, to produce the solution; solution produced by the method; and fulvic acid product comprising fulvic acid molecules extracted from the humus material... USE - For extracting fulvic acid molecules used in fulvic acid products having agricultural and horticultural applications. The fulvic acid concentrates or solutions are used as plant spray, soil additive or fertilizer additives... ADVANTAGE - The methods for extracting fulvic acid molecules from humus material, provides yields having increased amounts of fulvic acid molecules with decreased amounts of iron, salts, silica and other organic compounds. The methods are environmentally sensitive and use less chemicals than base-acid extraction methods. By adding phosphate, iron and aluminum are effectively precipitated and removed, and purity... DESCRIPTION OF DRAWINGS - The figure shows the flow chart of method for extracting fulvic acid molecules... **Technology Focus** ...of at least 8000 Daltons. The filtration apparatus-II retains substantially all of the fulvic acid molecules, which have passed through the first filtration apparatus. The filtration apparatus-II retains particles ...having a molecular weight of more than about 12,500 Daltons. Substantially all of the humic acid molecules are retained by filtration apparatus-I and/or filtration apparatus-III... The step (c) involves separating at least a portion of the solubilized fulvic acid molecules from water by ultrafiltration or nanofiltration. The solubilized fulvic acid molecules are separated from humic acid molecules by filtering the mixture through filtration apparatus-I. The filtration apparatus retains a portion of water, and leaves the separated fulvic acid molecules from step (c) in a solution. The process further involves the step of reducing... concentrate the solution, and drying the solution obtained from step (c) to leave the fulvic acid in a powder form. After step (a) and before filtering the mixture through the filtration... The precipitated iron phosphate and aluminum phosphate are separated from the fulvic acid molecules. The mixture is filtered through a filtration apparatus-III before filtering through the filtration... the filtration apparatus-III retains the humin molecules and at least a portion of the humic acid molecules while allowing the solubilized fulvic acid molecules and at least portion of the humic acid molecules to pass through. Phosphate (e.g. phosphoric acid), acid or alkali (14) is added to the mixture to adjust pH of the mixture to... Preferred Humus Material: The humus material comprises peat, oxidized lignite (2), peat moss, compost, brown coal, soil, pond sediment and bio-solid. The humus material comprises oxidized lignite e.g. leonardite. ... Preferred Acid: The acid is phosphoric acid, acetic acid, citric acid, hydrochloric acid and/or sulfuric acid. ... of at least 8000 Daltons. The filtration apparatus-II retains substantially all of the fulvic acid molecules, which have passed through the first filtration apparatus. The filtration apparatus-II retains particles... having a molecular weight of more

than about 12,500 Daltons. Substantially all of the **humic acid** molecules are retained by filtration apparatus-I and/or filtration apparatus-III.

Extension Abstract EXAMPLE - Water (900 gallons) was mixed with **leonardite** (1000 lbs), which was previously ground to an average particle size of 6 microns. Aged ... of the filtrate. The filtrate from the ultrafiltration membrane was removed and retentate comprising **fulvic acid** molecules was retained. The retentate comprised dissolved solids (1.25 wt%) including **fulvic acid** molecules. The color of the retentate solution was dark brown, but diluted to a bright... **Title Terms** .../Index Terms/Additional Words: **ACID**; ... **HUMIC**; **Class Codes** Original Publication Data by Authority Argentina Publication No. **Original Abstracts**: Methods for extracting molecules of **fulvic acid** from a humus material such as oxidized lignite are disclosed. The humus material is mixed with water to solubilize at least some of the **fulvic acid** molecules. A first filtration apparatus (which may be an ultrafiltration apparatus) may be used to separate at least some of the solubilized **fulvic acid** molecules from the humin and at least some of the **humic acid** molecules. A second filtration apparatus (which may be an ultrafiltration apparatus or a nanofiltration apparatus) may be used to then separate the **fulvic acid** molecules from most of the water and any remaining impurities. A digestion step may also... Methods for extracting molecules of **fulvic acid** from a humus material such as oxidized lignite are disclosed. The humus material is mixed with water to solubilize at least some of the **fulvic acid** molecules. A first filtration apparatus (which may be an ultrafiltration apparatus) may be used to separate at least some of the solubilized **fulvic acid** molecules from the humin and at least some of the **humic acid** molecules. A second filtration apparatus (which may be an ultrafiltration apparatus or a nanofiltration apparatus) may be used to then separate the **fulvic acid** molecules from most of the water and any remaining impurities. A digestion step may also... Methods for extracting molecules of **fulvic acid** from a humus material such as oxidized lignite are disclosed. The humus material is mixed with water to solubilize at least some of the **fulvic acid** molecules. A first filtration apparatus (which may be an ultrafiltration apparatus) may be used to separate at least some of the solubilized **fulvic acid** molecules from the humin and at least some of the **humic acid** molecules. A second filtration apparatus (which may be an ultrafiltration apparatus or a nanofiltration apparatus) may be used to then separate the **fulvic acid** molecules from most of the water and any remaining impurities. A digestion step may also... L'invention concerne des methodes permettant d'extraire des molecules d'**acide** fulvique d'une matiere humique telle que la lignite oxydee. La matiere humique est melangee a de l'eau afin de solubiliser au moins certaines molecules d'**acide** fulvique. Un premier appareil de filtration (qui peut etre un appareil d'ultrafiltration) peut etre utilise pour separer au moins certaines des molecules d'**acide** fulvique solubilisees a partir de l'humine et certaines des molecules d'**acide** humique. Un second appareil de filtration (qui peut etre un appareil d'ultrafiltration ou un appareil de nanofiltration) peut etre utilise pour separer les molecules d'**acide** fulvique de la plus grande partie de l'eau et des impuretes residuelles. Les methodes...

Dialog eLink: Order File History

41/34,K/5 (Item 5 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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WPI Acc no: 2005-810945/200582

Preparing an alkaline earth metal or another divalent metal ion salt of organic acid for e.g. medicine comprises reacting a hydroxide or halogen salt of a metal ion with organic acid in aqueous medium

Patent Assignee: OSTELOGIX AS (OSTE-N); VKR HOLDING SOBORG AS (VKRH-N)

Inventor: ANDERSEN J; ANDERSEN J E T; CHRISTGAU S; CHRISTGAU S A J

Patent Family (7 patents, 109 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2005108339	A2	20051117	WO 2005DK307	A	20050505	200582	B
EP 1744770	A2	20070124	EP 2005734804	A	20050505	200708	E
			WO 2005DK307	A	20050505		
AU 2005240257	A1	20051117	AU 2005240257	A	20050505	200724	E
KR 2007031312	A	20070319	WO 2005DK307	A	20050505	200755	E
			KR 2006725206	A	20061130		
US 20070282127	A1	20071206	WO 2005DK307	A	20050505	200781	E
			US 2007579773	A	20070723		
JP 2007536288	W	20071213	WO 2005DK307	A	20050505	200801	E
			JP 2007511865	A	20050505		
CN 101010087	A	20070801	CN 200580022657	A	20050505	200805	E
			WO 2005DK307	A	20050505		

Priority Applications (no., kind, date): WO 2004DK328 A 20040506; WO 2004DK327 A 20040506; WO 2004DK326 A 20040506; DK 20041708 A 20041105

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
WO 2005108339	A2	EN	56	7	
National Designated States, Original	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KM KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW				

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Regional Designated States,Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW															
EP 1744770	A2	EN			PCT Application						WO 2005DK307					
					Based on OPI patent						WO 2005108339					
Regional Designated States,Original	AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR															
AU 2005240257	A1	EN			Based on OPI patent						WO 2005108339					
KR 2007031312	A	KO			PCT Application						WO 2005DK307					
					Based on OPI patent						WO 2005108339					
US 20070282127	A1	EN			PCT Application						WO 2005DK307					
JP 2007536288	W	JA	45		PCT Application						WO 2005DK307					
					Based on OPI patent						WO 2005108339					
CN 101010087	A	ZH			PCT Application						WO 2005DK307					
					Based on OPI patent						WO 2005108339					

Alerting Abstract WO A2

NOVELTY - Preparing (M1) an alkaline earth metal and/or another divalent metal ion salt of an organic acid comprises reacting at least one of a hydroxide and/or a halogen salt of the metal ion with the organic acid (anion) in an aqueous medium at ≥ 90 (e.g. ≥ 100 , ≥ 120 , or ≥ 125) (deg)C for at the most 60 (e.g. at the most 30 or at the most 20 or about 15) minutes.

DESCRIPTION - An INDEPENDENT CLAIM is included for new strontium salts i.e. strontium (L-) diglutamate pentahydrate; and strontium D-glutamate hexahydrate.

ACTIVITY - Osteopathic.

MECHANISM OF ACTION - None given.

USE - In preparation of an alkaline earth metal and/or another divalent metal ion salts of an organic acid e.g. strontium salt useful in medicine (claimed), and industrial processes; in the production of food products, pharmaceuticals ingredients, vitamins, and other health related products; in products for personal care e.g. creams, lotions, and toothpastes; and industrial products such as **fertilizers**, building materials, glass, ion and steel manufacture. The strontium salts of dicarboxylic organic anions are useful in the treatment of metabolic bone disease.

ADVANTAGE - The method provides the divalent metal salt in ≥ 70 (preferably ≥ 75 , ≥ 80 , ≥ 85 , ≥ 90 or ≥ 95)% yield. The method provides metal-ion salts with high purity, controlled homogeneity and improved yield. The method enables use of much higher reaction temperature than room temperature; and provides the divalent salt in higher yield while keeping the formation of carbonate at very low limit i.e. amount of precipitated carbonate is less than 1 (preferably less than 0.5 or less than 0.2)% of the amount of divalent metal salt.

Technology Focus

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INORGANIC CHEMISTRY - Preferred Process: The salt is formed between an organic acid containing at least one carboxylic acid group and an alkaline earth metal (preferably strontium, calcium or magnesium, especially strontium). The reaction is performed in a closed container at a temperature of ≥ 100 (deg)C and a pressure of ≥ 1 bar. The method involves reacting strontium hydroxide with a di-carboxylic acid at 120 - 135 (deg)C and at a pressure of 1 - 1.7 bar for 15 - 60 minutes to obtain a strontium salt of the employed dicarboxylic acid. The method further involves filtering the hot reaction mixture immediately after heating is stopped to remove precipitated strontium carbonate from the reaction mixture, where precipitation of the strontium salt from the reaction mixture is improved by the addition of alcohol (5 - 60, preferably 5 - 40, especially 10 - 25) vol./vol.% to the solution.

Preferred Components: The halogen salt is a chloride salt. The salt solution comprises in addition to the divalent metal ion, a pharmaceutical active component containing acid and/or amino group.

ORGANIC CHEMISTRY - Preferred Process: The salt is formed between an organic acid containing at least one carboxylic acid group and an alkaline earth metal (preferably strontium, calcium or magnesium, especially strontium). The reaction is performed in a closed container at a temperature of ≥ 100 (deg)C and a pressure of ≥ 1 bar. The method involves reacting strontium hydroxide with a di-carboxylic acid at 120 - 135 (deg)C and at a pressure of 1 - 1.7 bar for 15 - 60 minutes to obtain a strontium salt of the employed dicarboxylic acid. The method further involves filtering the hot reaction mixture immediately after heating is stopped to remove precipitated strontium carbonate from the reaction mixture, where precipitation of the strontium salt from the reaction mixture is improved by the addition of alcohol (5 - 60, preferably 5 - 40, especially 10 - 25) vol./vol.% to the solution.

Preferred Components: The halogen salt is a chloride salt. The salt solution comprises in addition to the divalent metal ion, a pharmaceutical active component containing acid and/or amino group.

ORGANIC CHEMISTRY - Preferred Components: The organic acid is mono-, di-, tri- or tetra-carboxylic acid (preferably acetic acid, C_2H_5COOH , C_3H_7COOH , C_4H_9COOH , $(COOH)_2$, $CH_2(COOH)_2$, $C_2H_4(COOH)_2$, $C_3H_6(COOH)_2$, $C_4H_8(COOH)_2$, $C_5H_{10}(COOH)_2$, fumaric acid, maleic acid, malonic acid, lactic acid, citric acid, tartaric acid, oxalic acid, ascorbic acid, benzoic acid, salicylic acid, phthalic acid, carbonic acid, formic acid, methanesulfonic acid, ethanesulfonic acid, camphoric acid, gluconic acid, L- and D-glutamic acid, pyruvic acid, L- and D-aspartic acid, trifluoroacetic acid, ranelic acid, 2,3,5,6-tetrabromobenzoic acid, 2,3,5,6-tetrachlorobenzoic acid, 2,3,6-tribromobenzoic acid, 2,3,6-trichlorobenzoic acid, 2,4-dichlorobenzoic acid, 2,4-dihydroxybenzoic acid, 2,6-dinitrobenzoic acid, 3,4-dimethoxybenzoic acid, abietic acid, acetoacetic acid, acetone dicarboxylic acid, aconitic acid, acrylic acid, adipic acid, alpha-ketoglutaric acid, anthranilic acid, benzilic acid, arachidic acid, azelaic acid, behenic acid, benzenesulfonic acid, beta-hydroxybutyric acid, brassidic acid, capric acid, chloro-acrylic acid, cinnamic acid, citraconic acid, crotonic acid, cyclopentane-1,2-dicarboxylic acid,

cyclopentane carboxylic acid, cystathionine, decanoic acid, erucic acid, ethylenediaminetetraacetic acid, fulvic acid, fumaric acid, gallic acid, glutaconic acid, glutaric acid, gulonic acid, glucosamine sulfate, heptanoic acid, hexanoic acid, humic acid, hydroxy-stearic acid, isophthalic acid, itaconic acid, lanthionine, lauric acid (dodecanoic acid), levulinic acid, linoleic acid (cis,cis-9,12-octadecadienoic acid), malic acid, meta-chlorobenzoic acid, melissic acid, mesaconic acid, methacrylic acid, monochloroacetic acid, myristic acid, (tetradecanoic acid), nonanoic acid, norvaline, octanoic acid, oleic acid (cis-9-octadecenoic acid), ornithine, oxaloacetic acid, palmitic acid (hexadecanoic acid), para-aminobenzoic acid, para-chlorobenzoic acid, petroselic acid, phenylacetic acid, para-hydroxybenzoic acid, pimelic acid, propiolic acid, propionic acid, para-tert-butyl benzoic acid, para-toluenesulfonic acid, pyruvic acid, sarcosine, sebacic acid, serine, sorbic acid, stearic acid (octadecanoic acid), suberic acid, succinic acid, terephthalic acid, tetrolic acid, threonine, L-threonate, thyronine, tricarballylic acid, trichloroacetic acid, trimellitic acid, trimesic acid, tyrosine, ulmic acid or cyclohexane carboxylic acid); or is an amino carboxylic acid (preferably a natural or synthetic amino acid). The salt is strontium glutamate, strontium aspartate, strontium malonate, strontium D-glutamate, strontium L-glutamate, strontium (L-)diglutamate pentahydrate, strontium D-aspartate, strontium L-aspartate, strontium maleate, strontium ascorbate, strontium threonate, strontium lactate, strontium pyruvate, strontium fumarate or strontium succinate (preferably strontium malonate). The molar ratio between the metal ion and the organic acid is 0.8:1 - 1.2:1 (preferably above 1.05:1, especially above 1.1:1). The alcohol is ethanol or methanol. Preferred Salt: The strontium (L-) diglutamate pentahydrate has a crystal composition (Figure 3 and/or 4) and/or geometric properties (Table 4, 5 and/or 6) as given in the specification. The strontium D-glutamate hexahydrate has crystal composition (Figure 7) and/or geometric properties (Table 8 and/or 9) as given in the specification.

PHARMACEUTICALS - Preferred Components: The pharmaceutical active component is non-steroidal antiinflammatory agent (NSAID), cyclooxygenase-2 (COX-2) inhibitors, COX-3 inhibitors, inducible nitric oxide synthetase (iNOS) inhibitors, PAR2 receptor antagonists, neuroleptic agents, opioids, COX-inhibiting nitric oxide donators (CINOD), Disease modifying anti-rheumatic drugs (DMARD), bisphosphonates, N-acetylcholine receptor agonists, glycine antagonists, vanilloid receptor antagonists, neurokinin antagonists, N-Methyl-D-Aspartate (NMDA) receptor antagonists, calcitonin gene-related peptide antagonists and/or 6-(5-carboxy methyl-hexyloxy)-2,2-dimethyl-hexanoic acid or analogs including active metabolites. The NSAID is piroxicam, diclofenac, propionic acids including naproxen, flurbiprofen, fenoprofen, ketoprofen and ibuprofen, fenamate including mefenamic acid, paracetamol, indomethacin, sulindac, meloxicam or apazone, pyrazolone including phenylbutazone, or salicylate including aspirin. The pharmaceutical active component is an inhibitor of COX-2 enzyme (COX-2 inhibitor) with an inhibition constant (K_i) below 10 μM (preferably rofecoxib (Vioxx), valdecoxib, celecoxib (Celebrex), etoricoxib (Arcoxia), lumiracoxib

(Prexige), parecoxib (Dynastat), deracoxib (Deram), tiracoxib, meloxicam, nimesolide, (1,1-dimethylheptyl)-6a,7,10,10a-tetrahydro-1-hydroxy-6,6-dimethyl-6H-dibenzo[b]carboxylic acid (CT-3); 2(5H)-Furanone, 5,5-dimethyl(1-methylethoxy)[4(methylsulfonyl)phenyl]-(DFP); Carprofen; (Acetyloxy)-benzoic acid, 3-[(nitrooxy)-methyl]phenyl ester; P54 (CAS Reg. No.130996 0) 2,6-bis(1,1-dimethylethyl)[(E)-(2-ethyl-1,1-dioxoisothiazolidinylidene)-methyl] (S-2474); 5(R)-thio sulfonamide-3(2H)-benzofuranone (SVT-2016) and N-[3-(Formyl-amino)oxophenoxy-4H benzopyranyl]methane sulfonamide (T-614) or liclofelone [2,2-dimethyl-6-(4-chlorophenyl)-7-phenyl-2,3-dihydro-1H-pyrrolizine-5-yl]-acet: acid, or their active derivatives and/or their salts); or is an inhibitor of inducible NOS (iNOS) selected from amino-guanidine, N-G-Nitro-L-arginine, N-G-monomethyl-L-arginine, N⁶-(1-iminoethyl)-L-lysine, N-G-Nitro-L-arginine, S-methyl-L-thiocitrulline, N-G-monomethyl-L-arginine acetate, diphenylene iodonium chloride, isothioureia derivatives such as S-methyl isothioureia, S-ethyl isothioureia, S-isopropyl isothioureia and S-(2-aminoethyl)-isothioureia, N-G-monomethyl-L-arginine acetate, 2-iminopiperidine; 2,4-diamino-6-hydroxy-pyrimidine; 5-chloro-1,3-dihydro-2H-benzimidazol-2-one (FR038251), 1,3(2H,4H)-isoquinoline-dione (FR038470) and 5-chloro-2,4(1H,3H)-quinazolone dione (FR191863). The DMARD is doxycycline, chondroitin sulfate, methotrexate, ARAVA (RTM; leflunomide), dimethyl nitrosamine, azatriopine, hydroxychloroquine, cyclosporin, minocycline, salazopyrine, penicillamine, aurothiomalate (gold salt), cyclophosphamide, or azathioprine. The bisphosphonate is ibandronate, zoledronate, alendronate, risedronate, ethidronate, chlodronate, tiludronate, minodronate, incadronate, olpadronate or pamidronate.

Extension Abstract

EXAMPLE - A suspension of glutamic acid was prepared by adding millipore water (100 ml) to solid L-glutamic acid (14.703 g) having average molecular weight 187.14 g/mole in a 250 ml beaker. To this suspension was added solid SrCl₂ (26.66 g, average molecular weight 266.6). Then, a magnetic stirring rod was added and the stirring and heating was started, and maintained until the suspension reached the boiling point. After some minutes of boiling and stirring, the solution was clarified and all solid material was dissolved. The boiling was maintained and additional water was added so as to replace water lost by boiling. After 3 hours of boiling, the solution was filtered, where very small amounts of impurities were left in the filter. The filtrate was cooled to room temperature, ethanol was added, which resulted in growth of fine-powdered crystals of strontium L-diglutamate pentahydrate. Precipitation of the final product was progressed in the filtrate within an hour. The product was filtered and dried at 110(deg)C in an oven for half-an-hour followed by drying 12 hours in a dessicator over silica orange.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
A61K-0033/24	A	I	F	B	20060101
A61P-0019/08	A	I	L	B	20060101
C07C-0229/08	A	I	F	B	20060101
C07C-0229/08	A	I	L	B	20060101
C07C-0229/08	A	I		R	20060101
C07C-0229/76	A	I	L	B	20060101
C07C-0051/16	A	I	L	B	20060101
C07C-0051/41	A	I	F	B	20060101
C07C-0051/41	A	I	L	B	20060101
C07C-0051/41	A	I		R	20060101
C07C-0053/06	A	I	L	B	20060101
C07C-0055/08	A	I	L	B	20060101
C07C-0057/145	A	I	L	B	20060101
C07C-0057/15	A	I	L	B	20060101
C07C-0059/19	A	I	L	B	20060101
C07C-0069/38	A	I	L	B	20060101
C07C-0069/40	A	I	L	B	20060101
C07C-0069/60	A	I	L	B	20060101
C07C-0069/70	A	I	L	B	20060101
C07C-0069/704	A	I	L	B	20060101
C07C-0069/716	A	I	L	B	20060101
C07F-0003/00	A	N	L	B	20060101
A61K-0033/24	C	I	F	B	20060101
A61P-0019/00	C	I	L	B	20060101
C07C-0229/00	C	I	L	B	20060101
C07C-0229/00	C	I		B	20060101
C07C-0229/00	C	I		R	20060101
C07C-0051/16	C	I	L	B	20060101
C07C-0051/41	C	I	F	B	20060101
C07C-0051/41	C	I	L	B	20060101
C07C-0051/41	C	I		B	20060101
C07C-0051/41	C	I		R	20060101
C07C-0053/00	C	I	L	B	20060101
C07C-0055/00	C	I	L	B	20060101
C07C-0057/00	C	I	L	B	20060101
C07C-0057/145	C	I	L	B	20060101
C07C-0059/00	C	I	L	B	20060101
C07C-0069/00	C	I	L	B	20060101
C07F-0003/00	C	N	L	B	20060101

ECLA: C07C-051/41B+53/06, C07C-051/41B+55/08, C07C-051/41B+57/145,
C07C-051/41B+57/15, C07C-051/41B+59/19, C07C-051/41B+59/347, C07C-227/18
ICO: M07C-229:08

US Classification, Current Main: 562-524000

US Classification, Issued: 562524.0

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C07C-229/76			
C07C-051/41			
C07C-069/38			
C07C-069/40			
C07C-069/60			
C07C-069/70			
C07C-069/704			
C07C-069/716 Z			
C07F-003/00 B			
C07F-003/00 E			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4H006		
4H048		
4H006	AA01	
4H006	AA02	
4H006	AB10	
4H006	AB20	
4H006	AC90	
4H048	AC90	
4H048	VA60	
4H048	VB10	

Alerting Abstract ...products for personal care e.g. creams, lotions, and toothpastes; and industrial products such as **fertilizers**, building materials, glass, ion and steel manufacture. The strontium salts of dicarboxylic organic anions are... **Technology Focus** ...ascorbic acid, benzoic acid, salicylic acid, phthalic acid, carbonic acid, formic acid, methanesulfonic acid, ethanesulfonic acid, camphoric acid, **gluconic acid**, L- and D-glutamic acid, pyruvic acid, L- and D-aspartic acid, trifluoroacetic acid, ranelic... acid, gallic acid, glutaconic acid,

glutaric acid, gulonic acid, glucosamine sulfate, heptanoic acid, hexanoic acid, humic acid, hydroxy-stearic acid, isophthalic acid, itaconic acid, lanthionine, lauric acid (dodecanoic acid), levulinic acid... **Extension Abstract**

Dialog eLink: Order File History

41/34,K/6 (Item 6 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0015436469

WPI Acc no: 2005-785955/200580

Processing a lignocellulosic feedstock, useful as fertilizer, comprises pretreating the feedstock by adding acid, adding with a soluble base, enzymatically hydrolyzing the obtained feedstock and recovering inorganic salt

Patent Assignee: ANAND V (ANAN-I); FOODY B (FOOD-I); IOGEN ENERGY CORP (IOGE-N); RAHME Z (RAHM-I); TOLAN J S (TOLA-I)

Inventor: ANAND V; FOODY B; RAHME Z; TOLAN J; TOLAN J S

Patent Family (7 patents, 109 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2005099854	A1	20051027	WO 2005CA550	A	20050412	200580	B
US 20050244934	A1	20051103	US 2004561787	P	20040413	200580	E
			US 2005104698	A	20050413		
EP 1737550	A1	20070103	EP 2005735590	A	20050412	200703	E
			WO 2005CA550	A	20050412		
AU 2005232782	A1	20051027	AU 2005232782	A	20050412	200724	E
CN 1964767	A	20070516	CN 200580018385	A	20050412	200763	E
BR 200509886	A	20071009	BR 20059886	A	20050412	200768	E
			WO 2005CA550	A	20050412		
JP 2007532587	W	20071115	WO 2005CA550	A	20050412	200780	E
			JP 2007507632	A	20050412		

Priority Applications (no., kind, date): US 2004561787 P 20040413; US 2005104698 A 20050413

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
WO 2005099854	A1	EN	54	1	
National Designated	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH				

Save-2009-06-19_130357

States,Original	GM HR HU ID IL IN IS JP KE KG KM KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW															
Regional Designated States,Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW															
US 20050244934	A1	EN			Related to Provisional				US 2004561787							
EP 1737550	A1	EN			PCT Application				WO 2005CA550							
					Based on OPI patent				WO 2005099854							
Regional Designated States,Original	AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR															
AU 2005232782	A1	EN			Based on OPI patent				WO 2005099854							
BR 200509886	A	PT			PCT Application				WO 2005CA550							
					Based on OPI patent				WO 2005099854							
JP 2007532587	W	JA	55		PCT Application				WO 2005CA550							
					Based on OPI patent				WO 2005099854							

Alerting Abstract WO A1

NOVELTY - Processing a lignocellulosic feedstock (I) comprises: pretreating (I) by adding **acid** to (I) to form pretreated feedstock (II); adding soluble **base** to (II) to adjust the pH to form a neutralized feedstock (III); enzymatically hydrolyzing (III) to produce a sugar stream and an enzyme hydrolyzed feedstock and recovering inorganic salt (A) from the stream.

DESCRIPTION - Processing a lignocellulosic feedstock (I) comprises: pretreating (I) by adding **acid** to (I) to form pretreated feedstock (II); adding soluble **base** to (II) to adjust the pH from 4 to 6 to form a neutralized feedstock (III); enzymatically hydrolyzing (III) to produce a sugar stream and an enzyme hydrolyzed feedstock and recovering inorganic salt (A) from a stream (a stream produced from (I) prior to the pretreating step, a stream obtained from (II), a stream obtained from (III), and/or the sugar stream).

ACTIVITY - **Fertilizer**.

No biological data given.

MECHANISM OF ACTION - None given.

USE - (I) is useful as **fertilizer**.

ADVANTAGE - (I) provides an improved method to recover inorganic salt during processing of lignocellulosic feedstocks. (I) is cost effective. (I) avoids the use of **fossil** fuels.

Technology Focus

FOOD - Preferred Components: (I) (contains potassium (0.2-4% w/w)) is corn stover, wheat straw, barley straw, canola straw, rice straw, oat straw, soybean stover, grass, switch grass, miscanthus, cord grass, reed canary grass, aspen wood, sawdust, bagasse or beet pulp. In the

pretreatment step, the **acid** is sulfuric acid (preferred), sulfurous acid, sulfur dioxide and/or phosphoric acid.

ORGANIC CHEMISTRY - Preferred Method: In the recovering step, (A) (soluble) (comprises ammonium sulfate, potassium sulfate (both preferred), ammonium sulfite, potassium sulfite, sodium sulfate, sodium sulfite, magnesium sulfate, ammonium chloride, potassium chloride, ammonium phosphate and/or magnesium chloride) is recovered by ion exclusion, followed by crystallization of the inorganic salt, electrodialysis, drying/agglomeration and granulation. The ammonium sulfite salts, sodium sulfite salts and/or potassium sulfite salts are converted to sulfate salts by oxidation before or after the step of recovering. (A) is concentrated by evaporation and/or membrane filtration prior to recovery to produce a concentrated solution comprising the inorganic salt. The concentrated solution is clarified by microfiltration, plate and frame filtration or centrifugation prior to recovery. The pretreatment step comprises a method (batch dilute **acid** hydrolysis, continuous dilute **acid** hydrolysis, steam explosion or extrusion). In the step of adding, the soluble **base** is ammonia, ammonium hydroxide, potassium hydroxide or sodium hydroxide. The pretreatment step is performed at 160-280(deg)C (having a pH of 0.4-2) and/or for 0.1-30 minutes. The method further comprises fermenting the sugar stream to produce a fermentation broth comprising ethanol, distilling the fermentation broth to produce concentrated ethanol and still bottoms and recovering (A) from the still bottoms followed by purifying (A) (where prior to recovering (A) from the still bottoms, the concentration of the still bottoms is increased by evaporation and/or membrane filtration to produce concentrated still bottoms, followed by a ion exclusion chromatography using a simulated moving bed (SMB) process). The concentrated still bottoms are clarified by microfiltration, plate and frame filtration or centrifugation, prior to ion exclusion chromatography. The purification of (A) comprises crystallization of (A), electrodialysis, drying, or agglomeration and granulation. (I) is pressed and/or leached to produce a leachate, prior to the step of pretreatment, where the leachate is combined with one or more than one soluble inorganic salt stream obtained from (II), (III) and/or the sugar stream to produce a combined salt stream. The salt present in the combined salt stream is concentrated by evaporation and/or membrane filtration to produce a concentrated salt solution, which is clarified to produce a clarified salt solution. (A) is recovered from the clarified salt solution by ion exclusion chromatography. After the step of enzymatically hydrolyzing, the sugar stream is separated from the enzyme hydrolyzed feedstock to form a solid residue and a sugar hydrolyzate stream. In the pretreatment step, at least a portion of hemicellulose in the feedstock is hydrolyzed to produce sugar monomer (xylose, arabinose, mannose and/or galactose). In the step of enzymatically hydrolyzing, cellulase enzyme is added to (III) thus at least a portion of cellulose in the neutralized feedstock is hydrolyzed to produce glucose. The method further comprises the steps of purifying the recovered inorganic salt to obtain a purified inorganic salt and producing a product comprising the purified inorganic salt.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
B01B-0001/00	A	I		R	20060101
B01D-0001/00	A	I	F	B	20060101
B01D-0001/00	A	I	L	B	20060101
B01D-0001/00	A	I	L		20060101
B01D-0001/00	A	I		R	20060101
B01D-0015/08	A	I	F	B	20060101
B01D-0015/08	A	I	F		20060101
B01D-0015/08	A	I	L	B	20060101
B01D-0015/08	A	I		R	20060101
B01D-0015/18	A	I		R	20060101
B01D-0015/36	A	I		R	20060101
B01D-0061/14	A	I		R	20060101
B01D-0061/42	A	I	L	B	20060101
B01D-0061/42	A	I	L		20060101
B01D-0061/42	A	I		R	20060101
B01D-0061/44	A	I		R	20060101
B01D-0009/00	A	I	L	B	20060101
B01D-0009/00	A	I	L		20060101
B01D-0009/00	A	I		R	20060101
C05B-0007/00	A	I		R	20060101
C05C-0003/00	A	I		R	20060101
C05D-0001/00	A	I		R	20060101
C05D-0001/02	A	I		R	20060101
C05D-0005/00	A	I		R	20060101
C05F-0011/00	A	I		R	20060101
C05F-0005/00	A	I	L	B	20060101
C05F-0005/00	A	I	L		20060101
C05F-0005/00	A	I		R	20060101
C07G-0001/00	A	I	F	B	20060101
C10L-0001/02	A	I	L	B	20060101
C12P-0019/02	A	I	L	B	20060101
C12P-0019/02	A	I		R	20060101
C12P-0019/04	A	I		R	20060101
C12P-0019/14	A	I	L	B	20060101
C12P-0019/14	A	I	L		20060101
C12P-0019/14	A	I		R	20060101

Save-2009-06-19_130357

C12P-0003/00	A	I		R	20060101
C12P-0007/06	A	I	L	B	20060101
C12P-0007/06	A	I	L		20060101
C12P-0007/06	A	I		R	20060101
C12P-0007/10	A	I	L	B	20060101
C12P-0007/10	A	I		R	20060101
B01B-0001/00	C	I		R	20060101
B01D-0001/00	C	I	F	B	20060101
B01D-0001/00	C	I	L	B	20060101
B01D-0001/00	C	I		R	20060101
B01D-0001/00	C	I			20060101
B01D-0015/08	C	I	F	B	20060101
B01D-0015/08	C	I	L	B	20060101
B01D-0015/08	C	I		R	20060101
B01D-0015/08	C	I			20060101
B01D-0015/10	C	I		R	20060101
B01D-0015/26	C	I		R	20060101
B01D-0061/14	C	I		R	20060101
B01D-0061/42	C	I	L	B	20060101
B01D-0061/42	C	I		R	20060101
B01D-0061/42	C	I			20060101
B01D-0009/00	C	I	L	B	20060101
B01D-0009/00	C	I		R	20060101
B01D-0009/00	C	I			20060101
C05B-0007/00	C	I		R	20060101
C05C-0003/00	C	I		R	20060101
C05D-0001/00	C	I		R	20060101
C05D-0005/00	C	I		R	20060101
C05F-0011/00	C	I		R	20060101
C05F-0005/00	C	I	L	B	20060101
C05F-0005/00	C	I		R	20060101
C05F-0005/00	C	I			20060101
C07G-0001/00	C	I	F	B	20060101
C10L-0001/00	C	I	L	B	20060101
C12P-0019/00	C	I	L	B	20060101
C12P-0019/00	C	I		R	20060101
C12P-0019/00	C	I			20060101
C12P-0003/00	C	I		R	20060101
C12P-0007/02	C	I	L	B	20060101
C12P-0007/02	C	I		R	20060101
C12P-0007/02	C	I			20060101

Save-2009-06-19_130357

ECLA: B01B-001/00B, B01D-015/18R2, B01D-015/36E, B01D-061/14, B01D-061/44, C05B-007/00, C05C-003/00, C05D-001/00, C05D-001/02, C05D-005/00, C05F-011/00, C12P-003/00, C12P-007/06, C12P-007/10, C12P-019/02

US Classification, Current Main: 435-101000; **Secondary:** 435-168000

US Classification, Issued: 435101, 435168

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C05B-007/00			
C05C-003/00			
C05D-001/02			
C05D-005/00			
C07G-001/00			
C10L-001/02			
C12P-019/02			
C12P-007/10			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4B064		
4H013		
4H055		
4H061		
4B064	AA01	
4H061	AA02	
4H055	AA03	
4H055	AB44	
4H055	AB99	
4B064	AC03	
4H055	AC11	
4H055	AC13	
4H055	AC50	
4H013	BA01	
4H013	BA02	
4H055	BA30	
4H061	BB10	
4H061	BB11	
4H061	BB32	
4H061	BB52	

4H061	BB54
4B064	CA06
4B064	CA21
4B064	CB07
4H061	CC15
4B064	CD24
4B064	CE01
4B064	DA16
4H061	GG08
4H061	GG19
4H061	GG22
4H061	GG29
4H061	GG30
4H061	GG53
4H061	GG54
4H061	GG65
4H061	LL02
4H061	LL22

Processing a lignocellulosic feedstock, useful as fertilizer, comprises pretreating the feedstock by adding acid, adding with a soluble base, enzymatically hydrolyzing the obtained feedstock and recovering inorganic salt

Alerting Abstract ...NOVELTY - Processing a lignocellulosic feedstock (I) comprises: pretreating (I) by adding acid to (I) to form pretreated feedstock (II); adding soluble base to (II) to adjust the pH to form a neutralized feedstock (III); enzymatically hydrolyzing (III)...

DESCRIPTION - Processing a lignocellulosic feedstock (I) comprises: pretreating (I) by adding acid to (I) to form pretreated feedstock (II); adding soluble base to (II) to adjust the pH from 4 to 6 to form a neutralized feedstock... ..

ACTIVITY - Fertilizer.USE - (I) is useful as fertilizer.salt during processing of lignocellulosic feedstocks. (I) is cost effective. (I) avoids the use of fossil fuels.

Technology Focus ...reed canary grass, aspen wood, sawdust, bagasse or beet pulp. In the pretreatment step, the acid is sulfuric acid (preferred), sulfurous acid, sulfur dioxide and/or phosphoric acid. ...

...frame filtration or centrifugation prior to recovery. The pretreatment step comprises a method (batch dilute acid hydrolysis, continuous dilute acid hydrolysis, steam explosion or extrusion). In the step of adding, the soluble base is ammonia, ammonium hydroxide, potassium hydroxide or sodium hydroxide. The pretreatment step is performed at 160-280(deg)C (having a

Extension Abstract Title Terms .../Index Terms/Additional Words: FERTILISER;ACID;BASE; Class Codes Original Publication Data by AuthorityArgentinaPublication No. ...Original

Abstracts:a lignocellulosic feedstock is provided. The method comprises pretreating the lignocellulosic feedstock by adding an acid to the

feedstock to produce a pretreated lignocellulosic feedstock. A soluble **base** is then added to the pretreated lignocellulosic feedstock to adjust the pH and produce a... .. electrodialysis drying, or agglomeration and granulation, and then used as desired, for example as a **fertilizer**. ...

... a lignocellulosic feedstock is provided. The method comprises pretreating the lignocellulosic feedstock by adding an **acid** to the feedstock to produce a pretreated lignocellulosic feedstock. A soluble **base** is then added to the pretreated lignocellulosic feedstock to adjust the pH and produce a... .. electrodialysis drying, or agglomeration and granulation, and then used as desired, for example as a **fertilizer**. ...

... a lignocellulosic feedstock is provided. The method comprises pretreating the lignocellulosic feedstock by adding an **acid** to the feedstock to produce a pretreated lignocellulosic feedstock. A soluble **base** is then added to the pretreated lignocellulosic feedstock to adjust the pH and produce a... .. electrodialysis drying, or agglomeration and granulation, and then used as desired, for example as a **fertilizer**. ...

... aliments lignocellulosiques. Ce procede consiste a pretraiter l'aliment lignocellulosique par l'addition d'un **acide** dans cet aliment de facon a produire un aliment lignocellulosique pretraite. Une **base** soluble est ensuite ajoutee a cet aliment lignocellulosique pretraite de facon a regler le pH... .. par electrodialyse ou par agglomeration et granulation puis, utilise selon les besoins, par exemple comme **fertiliseur**. >...**Claims:lignocellulosic feedstock comprising:a. pretreating the lignocellulosic feedstock by adding one or more than one acid to the lignocellulosic feedstock to produce a pretreated lignocellulosic feedstock;b. adding one or more than one soluble base to the pretreated lignocellulosic feedstock to adjust the pretreated lignocellulosic feedstock to a pH of...**

Dialog eLink: Order File History

41/34,K/7 (Item 7 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0015008244

WPI Acc no: 2005-356154/200536

New water-soluble iron, zinc, copper and manganese humates, useful for treating mineral deficiency diseases in plants and vertebrates

Patent Assignee: HUMINTECH GMBH (HUMI-N)

Inventor: PERMINOVA I

Patent Family (2 patents, 106 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2005042551	A1	20050512	WO 2004EP12307	A	20041029	200536	B
DE 10351274	A1	20050602	DE 10351274	A	20031031	200536	E

Save-2009-06-19_130357

Priority Applications (no., kind, date): DE 10351274 A 20031031
 Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
WO 2005042551	A1	DE	37	1	
National Designated States, Original	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW				
Regional Designated States, Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW				

Alerting Abstract WO A1

NOVELTY - Iron, zinc, copper and manganese humates (I) with a water-solubility of more than 20 g/l at 20(deg)C are new.

DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

1. producing (I) by: preparing an aqueous alkali metal humate solution; adding an iron, zinc, copper or manganese salt of a mineral acid in an amount of 5-15 wt.% and controlling the pH during the reaction to give (I); and
2. a composition comprising (I).

ACTIVITY - Fertilizer.

Tomato plants grown in a hydroponic medium containing iron humate (8 mg/l) had a higher chlorophyll content than tomato plant grown in a similar medium containing iron EDTA (5.7 mg/l).

MECHANISM OF ACTION - None given.

USE - (I) are useful for treating mineral deficiency diseases in plants, especially crops, or as component of **fertilizers**, or for preparing medicaments for **preventing** or treating mineral deficiency diseases in vertebrates, especially humans and other mammals, or as dietary supplements for vertebrates, especially humans and other mammals (all claimed).

ADVANTAGE - (I) are water-soluble.

Technology Focus

Utilization of residues from coal power plants in the nature

ORGANIC CHEMISTRY - Preferred Process: The alkali metal humate solution can be produced by alkali extraction of coal, brown coal, leonardite, compost or sea sludge. The alkali metal is potassium or sodium. The metal salt is added as an aqueous solution. The mineral acid contains sulfur. The reaction is effected at 18-90(deg)C for 1-6 hours, or until the pH reaches a constant value. The reaction is effected under an inert gas and/or in the presence of a reducing agent. The product is dried to a moisture content below 15 wt.%.

AGRICULTURE - Preferred Composition: The composition is a product for treating plant deficiency diseases or a fertilizer.

PHARMACEUTICALS - Preferred Composition: The composition is a human or veterinary medicament or dietary supplement. The composition is encapsulated in or coated with an enteric material.

Extension Abstract

EXAMPLE - A solution of potassium humate (150-180 g) in water (1000 ml) was treated with a 16-17% iron(II) sulfate solution (1000 ml) while stirring and controlling the pH with a concentrated potassium hydroxide solution. The mixture was stirred for 4-5 hours and spray dried to give a product (300-350 g) containing 7-10% iron.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
A01N-0059/16	A	I		R	20060101
A01N-0059/20	A	I		R	20060101
A01N-0061/00	A	I		R	20060101
A01N-0063/00	A	I		R	20060101
A01N-0065/00	A	I		R	20090101
C05D-0009/02	A	I		R	20060101
C05F-0011/02	A	I		R	20060101
C07D-0493/04	A	I		R	20060101
C08H-0005/00	A	I		R	20060101
A01N-0059/16	C	I		R	20060101
A01N-0061/00	C	I		R	20060101
A01N-0063/00	C	I		R	20060101
A01N-0065/00	C	I		R	20090101
C05D-0009/00	C	I		R	20060101
C05F-0011/00	C	I		R	20060101
C07D-0493/00	C	I		R	20060101
C08H-0005/00	C	I		R	20060101

ECLA: A01N-059/16, A01N-059/20, A01N-061/00, A01N-065/00, C05D-009/02,
C07D-493/04+311B+311B+5, C08H-005/00
ICO: M07D-493:04

...Original Titles:HUMIC ACID METALLIC COMPOUND, PREPARATION THEREOF, COMPOSITIONS CONTAINING SAME AND USE OF SAID COMPOUND... ..COMPOSE METALLIQUE D'ACIDES HUMIQUES, SA PREPARATION, COMPOSITIONS LE CONTENANT ET UTILISATION DUDIT COMPOSE Alerting Abstract ... alkali metal humate solution; adding an iron, zinc, copper or manganese salt of a mineral acid in an amount of 5-15 wt.% and controlling the pH during the reaction to give (I... .. ACTIVITY - Fertilizer.... .. are useful for treating mineral deficiency diseases in plants, especially crops, or as component of fertilizers, or for preparing medicaments for preventing or treating mineral deficiency diseases in vertebrates, especially humans and other mammals, or as dietaryTechnology Focus ...CHEMISTRY - Preferred Process: The alkali metal humate solution can be produced by alkali extraction of coal, brown coal, leonardite, compost or sea sludge. The alkali metal is potassium or sodium. The metal salt is added as an aqueous solution. The mineral acid contains sulfur. The reaction is effected at 18-90(deg)C for 1-6 hours... ..AGRICULTURE - Preferred Composition: The composition is a product for treating plant deficiency diseases or a fertilizer. Extension Abstract Original Publication Data by AuthorityArgentinaPublication No. ...Original Abstracts:The invention concerns a humic acid metallic compound of general formula M-Hu, wherein M represents the Fe(II/III) and/or Zn(II) and/or Cu(II) and/or Mn(II) cation and Hu represents a humic acid radical. Compose metallique d'acides humiques de formule generale M-Hu, dans laquelle M represente le cation Fe(II/III) et / ou Zn(II) et / ou Cu(II) et / ou Mn(II) et Hu represente un reste d'acide humique.

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41/34,K/8 (Item 8 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0014710184

WPI Acc no: 2005-057793/200506

Preparing fertilizer composition useful for increasing plant growth involves reacting humified fossil material in water and gluconic acid followed by adding alkaline agent to the mixture to adjust the pH to a basic value

Patent Assignee: FERTIREV SRL (FERT-N); PENHILL LTD (PENH-N); TERENCE D (TERE-I)

Inventor: TERENCE D

Patent Family (14 patents, 107 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2004110962	A1	20041223	WO 2004IB1905	A	20040610	200506	B
EP 1644301	A1	20060412	EP 2004736540	A	20040610	200626	E
			WO 2004IB1905	A	20040610		
BR 200411390	A	20060718	BR 200411390	A	20040610	200649	E
			WO 2004IB1905	A	20040610		
AU 2004247480	A1	20041223	AU 2004247480	A	20040610	200656	E
JP 2006527161	W	20061130	WO 2004IB1905	A	20040610	200680	E
			JP 2006516521	A	20040610		
MX 2005013592	A1	20060801	WO 2004IB1905	A	20040610	200701	E
			MX 200513592	A	20051213		
CN 1835899	A	20060920	CN 200480023170	A	20040610	200706	E
US 20070051148	A1	20070308	WO 2004IB1905	A	20040610	200720	E
			US 2005560081	A	20051208		
IN 200600113	P4	20070629	WO 2004IB1905	A	20040610	200768	E
			IN 2006CN113	A	20060110		
IT 1347057	B	20080903	IT 2003LT6	A	20030613	200915	E
IT 1347058	B	20080903	IT 2003LT7	A	20030613	200915	E
IT 1347059	B	20080903	IT 2003LT8	A	20030613	200915	E
IN 200801573	P4	20081128	WO 2004IB1905	A	20040610	200925	E
			IN 2006CN113	A	20040610		
			IN 2008CN1573	A	20080328		
RU 2351577	C2	20090410	WO 2004IB1905	A	20040610	200926	E
			RU 2006101161	A	20040610		

Priority Applications (no., kind, date): IT 2003LT8 A 20030613; IT 2003LT7 A 20030613; IT 2003LT6 A 20030613

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes															
WO 2004110962	A1	EN	22	0																
National Designated States,Original	AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN																			
	CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH																			
	GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS																			
	LT LU LV MA MD MG MK MN MW MX MZ NA NI NO NZ OM PG																			
	PH PL PT RO RU SC SD SE SG SK SL SY TJ TM TN TR TT																			
	TZ UA UG US UZ VC VN YU ZA ZM ZW																			
Regional Designated States,Original	AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM																			
	GR HU IE IT KE LS LU MC MW MZ NA NL OA PL PT RO SD																			
	SE SI SK SL SZ TR TZ UG ZM ZW																			
EP 1644301	A1	EN			PCT Application											WO 2004IB1905				
					Based on OPI patent											WO 2004110962				

Regional Designated States,Original	AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IT LI LT LU MC MK NL PL PT RO SE SI SK TR															
BR 200411390	A	PT				PCT Application										WO 2004IB1905
						Based on OPI patent										WO 2004110962
AU 2004247480	A1	EN				Based on OPI patent										WO 2004110962
JP 2006527161	W	JA	13			PCT Application										WO 2004IB1905
						Based on OPI patent										WO 2004110962
MX 2005013592	A1	ES				PCT Application										WO 2004IB1905
						Based on OPI patent										WO 2004110962
US 20070051148	A1	EN				PCT Application										WO 2004IB1905
IN 200600113	P4	EN				PCT Application										WO 2004IB1905
IN 200801573	P4	EN				PCT Application										WO 2004IB1905
						Division of application										IN 2006CN113
RU 2351577	C2	RU				PCT Application										WO 2004IB1905
						Based on OPI patent										WO 2004110962

Alerting Abstract WO A1

NOVELTY - Preparation of a **fertilizer** composition involves:

- A. reacting a humified **fossil** material (M1) in water in the presence of **gluconic acid**; and
- B. adding an **alkaline** agent to the mixture to adjust the pH to a **basic** value.

(M1) is selected from **leonardite**, lignite, xylite or peat (preferably **leonardite**).

USE - For preparing composition which is useful as **fertilizer** for increasing **plant** growth; to increase fertility of the agriculture **soil** or to **decontaminant soils** polluted by chemical products and/or toxic metal ions and to **fertilize** by localized irrigation and/or spraying leaves (claimed).

ADVANTAGE - The process produces **fertilizer** composition that exhibits high levels of activity in **decontaminating soils** which are polluted by chemical products (e.g. chlorine or bromine derivatives), by toxins and toxic metal ions, with an improvement in the physical, chemical and biologic characteristics of the soil. The compositions produced show increased fertility of soils which are impoverished or have not been subjected to crop rotation, sandy soils or salty soils having high conductivity; it releases all the fertility elements present in the soil with an increase in the capacity for cationic exchange of the soil; it introduces to the soil, organic substances having a high levels of humification and makes them readily available to **plants**; it increases all biochemical activities of the soil; it increases the chlorophyll photosynthesis processes of **plants**; it increases the resistance of **plants** to stress owing to adverse pedological climatic factors; it increases the

germination of seeds; it shows marked reduction (up to 70%) in the use of mineral and chemical **fertilizers** in soil; it eliminates introduction of nitrates to the soil in conventional nutritional techniques for **plants**; it improves agricultural products in terms of quality and quantity; it increases the content of sugars, vitamins, mineral salts and carotenoids (licopenes) in fruit and vegetables; it reduces the growth cycle of **plants**, with the sales period of the fruit and vegetables; it increases the self-defense barriers of **plants** from attacks by parasites of the fungal and bactericidal type; it avoids fermentation processes from the organic substance administered as it is completely mineralized; it provides high levels of antimicrobial action owing to the presence of **gluconic acid** in the preparation; it ensures total elimination of pollution of groundwater owing to leaching of mineral salts; and provides maximum guarantee of fruit and vegetable production, free from toxic elements and/or polluting chemical products. The use of urea glucohumate exhibits marked increase in the persistence of ureic nitrogen in the soil; it allows slow, continuous and protected release of the ureic nitrogen, without problems of leaching; it greatly reduced release of ammonia in the soil after use of the preparation; it reduces (of up to 50%) the **fertilizing** units in terms of nitrogen in the crops, owing to the total absence of losses owing to leaching and/or adverse pedological factors; it is suitable for use in all types of cultivation, both extensive and intensive, in open fields and for protected cultivation, independent of the technical, agronomical or thermoenviromental conditions; it makes it possible to administer the localized product to the **plants** (in the rows for cultivation) and it allows introduction of mineralized organic substance having a high level of humification to the **plants**. The granular form of the composition exhibits balanced nutrition of the **plants**, with uninterrupted availability of the mineral salts contained in the preparation, which are always ready to be used by the **plants** in a stable gelatinous solution; it provides a clear soil conditioning action with an improvement in the physical state owing to the hyper-aeration of the soil particles; it introduces nutritional elements which are indispensable for the metabolic functions of the **plants**; it eliminates the shock of transplantation for the young **plants**; it shows marked reduction in the occurrences of irrigation; it develops root systems of the **plants**; it shows strong repelling action in respect of terrestrial insects and hypogeous nematodes, in addition to the introduction of protein substances having a high content of organic nitrogen; it shows great reduction in the introduction of nutritional elements (N, P, K and oligoelements) to the soil; it is nonleachability of the nutritional elements contained in the granules because they are protected inside the gelatinous mass which is produced in the presence of moisture and it makes it possible to cultivate in arid and desert territories or in soils having high conductivity, because the ambient moisture alone allows systematic cultivation.

Technology Focus

AGRICULTURE - Preferred Process: In step a), 50% **gluconic acid** (3 - 10 wt.%) is added to adjust the pH to values to less than 3 (preferably less than 2.5), at a temperature not greater than 30 (deg) C and the reaction

is continued for 2 - 4 hours with agitation, which is followed by an optional stationary period for 6 - 12 hours. In step (b), 48 -50% **potassium hydroxide** (6 - 15 wt.%) is added and agitation is continued for 6 - 12 hours, followed by an optional stationary period of up to 24 hours. The process additionally involves the **addition** of **macronutrient** and micronutrient substances, urea (10 - 60 wt.%) or **plant** extracts (particularly extracts of **castor** beans and **lupin** seeds) to the product of step (b). The product obtained by step (b) is subjected to drying and granulation to produce a composition in granular form. The granular composition is mixed with super-absorbent polymer substances (particularly derivatives of hydrolyzed **starch**), for preparing a granular composition having a high level of water retention. The product of step (b) is subjected to filtration with separation of the liquid phase, which is intended for use as a liquid **fertilizer**. The liquid phase obtained by filtration is supplemented with urea (20 - 60 wt.%). The composition obtained is either in liquid or granular form.

INORGANIC CHEMISTRY - Preferred Components: The **alkaline** agent is **potassium hydroxide** or ammonium hydroxide.

Extension Abstract

EXAMPLE - **Leonardite** was finely ground and then water was added to it. To that mixture 50% **gluconic acid** (5 -8 wt.%) was added and mixed for 2 hours. The entire mass was left in a stationary state for 6 - 12 hours at 17 - 30 (deg) C. After that, 48 - 50% liquid **potassium hydroxide** (6 - 15 wt.%) was added and agitated for 6 - 12 hours. The product obtained was dried and granulated to give a **fertilizer** composition.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date			
A01C; C05C-009/00; C05F-011/02			Main		"Version 7"			
C05G-003/04; C05G-005/00			Secondary		"Version 7"			
B09C-0001/02	A	I	L	B	20060101			
B09C-0001/08	A	I	L	B	20060101			
B09C-0001/10	A	I	L	B	20060101			
C05C-0003/00	A	I	L	B	20060101			
C05C-0009/00	A	I	L	B	20060101			
C05D-0001/00	A	I	L	B	20060101			
C05F-0011/00	A	I	L	B	20060101			
C05F-0011/02	A	I		R	20060101			

C05F-0011/02	A	I	F	B	20060101			
C05G-0001/00	A	I	L	B	20060101			
C05G-0003/04	A	I	L	B	20060101			
C05G-0003/06	A	I	L	B	20060101			
C05G-0005/00	A	I		R	20060101			
C05G-0005/00	A	I	L	B	20060101			
C09K-0017/14	A	I	L	B	20060101			
C09K-0017/18	A	I	L	B	20060101			
C09K-0017/32	A	I	L	B	20060101			
B09C-0001/00	C	I	L	B	20060101			
C05C-0009/00	C	I	L	B	20060101			
C05F-0011/00	C	I		R	20060101			
C05F-0011/00	C	I	F	B	20060101			
C05F-0011/00	C	I		B	20060101			
C05G-0003/00	C	I	L	B	20060101			
C05G-0003/04	C	I	L	B	20060101			
C05G-0005/00	C	I		R	20060101			
C05G-0005/00	C	I	L	B	20060101			

ECLA: C05F-011/02

US Classification, Current Main: 71-024000

US Classification, Issued: 7124

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C09K-101/00		Z	indexing
B09B-003/00 304 K			
C05C-003/00			
C05C-009/00			
C05D-001/00			
C05F-011/00			
C05F-011/02			
C05G-001/00 A			
C05G-003/06			
C05G-005/00 A			
C09K-017/14 H			
C09K-017/18 H			
C09K-017/32 H			
C09K-017/32 K			
B09B-003/00 E	ZAB		

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4D004		
4H026		
4H061		
4H026	AA01	
4H061	AA01	
4H026	AA02	
4H061	AA02	
4H061	AA04	
4H026	AA07	
4H026	AA10	
4H026	AA11	
4D004	AA41	
4D004	AB03	
4H026	AB04	
4D004	AB05	
4D004	AB06	
4D004	BA04	
4H061	BB08	
4H061	BB15	
4H061	BB21	
4H061	BB51	
4D004	CA17	
4D004	CA34	
4H061	CC01	
4H061	CC15	
4H061	CC21	
4H061	CC24	
4H061	CC57	
4H061	DD15	
4H061	EE11	
4H061	EE15	
4H061	EE16	
4H061	EE17	
4H061	EE27	
4H061	EE35	
4H061	EE51	
4H061	EE52	
4H061	EE63	
4H061	FF02	

4H061	FF08
4H061	GG19
4H061	GG26
4H061	GG28
4H061	GG29
4H061	GG54
4H061	HH26
4H061	JJ02
4H061	LL02
4H061	LL05
4H061	LL22
4H061	LL24

Preparing fertilizer composition useful for increasing plant growth involves reacting humified fossil material in water and gluconic acid followed by adding alkaline agent to the mixture to adjust the pH to a basic value ...Original Titles:FERTILIZER COMPOSITIONS...
 ...Fertilisation compositions... ...Fertilizer compositions...
 ...FERTILIZER COMPOSITIONS Alerting Abstract ... NOVELTY - Preparation of a fertilizer composition involves... ... reacting a humified fossil material (M1) in water in the presence of gluconic acid; and adding an alkaline agent to the mixture to adjust the pH to a basic value... ... M1) is selected from leonardite, lignite, xylite or peat (preferably leonardite).USE - For preparing composition which is useful as fertilizer for increasing plant growth; to increase fertility of the agriculture soil or to decontaminant soils polluted by chemical products and/or toxic metal ions and to fertilize by localized irrigation and/or spraying leaves (claimed... ...ADVANTAGE - The process produces fertilizer composition that exhibits high levels of activity in decontaminating soils which are polluted by chemical products (e.g. chlorine or bromine derivatives), by toxins and... ...soil, organic substances having a high levels of humification and makes them readily available to plants; it increases all biochemical activities of the soil; it increases the chlorophyll photosynthesis processes of plants; it increases the resistance of plants to stress owing to adverse pedological climatic factors; it increases the germination of seeds; it shows marked reduction (up to 70%) in the use of mineral and chemical fertilizers in soil; it eliminates introduction of nitrates to the soil in conventional nutritional techniques for plants; it improves agricultural products in terms of quality and quantity; it increases the content of... ...mineral salts and carotenoids (licopenes) in fruit and vegetables; it reduces the growth cycle of plants, with the sales period of the fruit and vegetables; it increases the self-defense barriers of plants from attacks by parasites of the fungal and bactericidal type; it avoids fermentation processes from... ...is completely mineralized; it provides high levels of antimicrobial action owing to the presence of gluconic acid in the

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preparation; it ensures total elimination of pollution of groundwater owing to leaching of... ..in the soil after use of the preparation; it reduces (of up to 50%) the **fertilizing** units in terms of nitrogen in the crops, owing to the total absence of losses... ..agronomical or thermoenviromental conditions; it makes it possible to administer the localized product to the **plants** (in the rows for cultivation) and it allows introduction of mineralized organic substance having a high level of humification to the **plants**. The granular form of the composition exhibits balanced nutrition of the **plants**, with uninterrupted availability of the mineral salts contained in the preparation, which are always ready to be used by the **plants** in a stable gelatinous solution; it provides a clear soil conditioning action with an improvement... ..soil particles; it introduces nutritional elements which are indispensable for the metabolic functions of the **plants**; it eliminates the shock of transplantation for the young **plants**; it shows marked reduction in the occurrences of irrigation; it develops root systems of the **plants**; it shows strong repelling action in respect of terrestrial insects and hypogeous nematodes, in addition... **Technology Focus AGRICULTURE** - Preferred Process: In step a), 50% **gluconic acid** (3 - 10 wt.%) is added to adjust the pH to values to less than 3... ..followed by an optional stationary period for 6 - 12 hours. In step (b), 48 -50% **potassium hydroxide** (6 - 15 wt.%) is added and agitation is continued for 6 - 12 hours, followed by an optional stationary period of up to 24 hours. The process additionally involves the addition of **macronutrient** and **micronutrient** substances, urea (10 - 60 wt.%) or **plant** extracts (particularly extracts of **castor** beans and **lupin** seeds) to the product of step (b). The product obtained by step (b) is subjected... ..form. The granular composition is mixed with super-absorbent polymer substances (particularly derivatives of hydrolyzed **starch**), for preparing a granular composition having a high level of water retention. The product of... ..filtration with separation of the liquid phase, which is intended for use as a liquid **fertilizer**. The liquid phase obtained by filtration is supplemented with urea (20 - 60 wt.%). The composition... ..INORGANIC CHEMISTRY - Preferred Components: The **alkaline** agent is **potassium hydroxide** or ammonium hydroxide. **Extension Abstract EXAMPLE** - **Leonardite** was finely ground and then water was added to it. To that mixture 50% **gluconic acid** (5 -8 wt.%) was added and mixed for 2 hours. The entire mass was left... ..state for 6 - 12 hours at 17 - 30 (deg) C. After that, 48 - 50% liquid **potassium hydroxide** (6 - 15 wt.%) was added and agitated for 6 - 12 hours. The product obtained was dried and granulated to give a **fertilizer** composition. **Title Terms** .../Index Terms/Additional Words: **FERTILISER**;**PLANT**;**FOSSIL**;**ACID**;**ALKALINE**;**BASIC**; **Class Codes** Original Publication Data by AuthorityArgentinaPublication No. **Original Abstracts**:A process for preparing a **fertilizer** composition, character-ized in that it comprises the following steps: a) reacting a humified **fossil** material, which is selected from the group comprising **leonardite**, lignite, xylite and peat, in water in the presence of **gluconic acid**; and b) subsequently adding to the mixture an **alkaline** agent in such a quantity as to adjust the pH to a **basic** value... .. **FIELD**: chemistry. **SUBSTANCE**: invention refers to agriculture and concerns method for making **fertilisation** composition.

Method includes the stages as follows: a) interaction of humified mineral chosen from the group including **leonardite**, lignite, xylolith and peat, in water with **gluconic acid** added to the specified mineral in amount ensuring reaction medium pH reduced to less than 2.5; and b) sequential addition to the mixture of **alkaline** reagent in amount ensuring pH reduced to the value corresponding to that of **alkaline** medium. Besides, the invention concerns liquid **fertilisation** compositions and granulated **fertilisation** compositions to be produced by declared method.

Additionally, the invention concerns applications of granulated composition as **fertiliser**, particularly, for **plant** growth stimulation, application of granulated composition for higher fertility of arable **soils** or for **cleaning** of arable **soils** contaminated with chemical products and/or toxic metal ions. The invention also refers to applications of liquid composition for localised leaves irrigation and/or spraying **fertilising**. EFFECT: invention allows for improved method for making liquid or solid **fertiliser** with enhanced properties and extended application.

20 cl, 4 ex... . . . A process for preparing a **fertilizer** composition, characterized in that it comprises the following steps: a) reacting a humified **fossil** material, which is selected from the group comprising **leonardite**, lignite, xylite and peat, in water in the presence of **gluconic acid**; and b) subsequently adding to the mixture an **alkaline** agent in such a quantity as to adjust the pH to a **basic** value... . . . A process for preparing a **fertilizer** composition, character-ized in that it comprises the following steps: a) reacting a humified **fossil** material, which is selected from the group comprising **leonardite**, lignite, xylite and peat, in water in the presence of **gluconic acid**; and b) subsequently adding to the mixture an **alkaline** agent in such a quantity as to adjust the pH to a **basic** value... . . . caract r iser en ce qu'il consiste (a) a faire reagir dans l'eau une mati re **fossile** humifi e choisie dans le groupe constitue de la **leonardite**, du lignite, de la xylite et de la tourbe, en presence d'**acide gluconique**; puis (b) a ajouter au melange un agent alcalin en quantite suffisante pour obtenir... **Claims:1.** A process for preparing a **fertilizer** composition, comprising the following steps: reacting a humified **fossil** material, which is selected from the group comprising **leonardite**, lignite, xylite and peat, in water in the presence of **gluconic acid**; and subsequently adding to the mixture an **alkaline** agent in such a quantity as to adjust the pH to a **basic** value.

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41/34,K/9 (Item 9 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0014614825 *Drawing available*

WPI Acc no: 2004-796798/200478

Production of humic substances, by introducing acidic oxidizing agent to reactor vessel containing raw material in form of fossil fuel e.g. coal, and/or composted organic material e.g. plant origin, to cause exothermic

chemical reaction

Patent Assignee: FARMFERT FORMULATORS CC (FARM-N)

Inventor: CUNNINGHAM F R G

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
ZA 200106028	A	20031126	ZA 20016028	A	20010723	200478	B

Priority Applications (no., kind, date): ZA 20003741 A 20000725

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
ZA 200106028	A	EN	33	2	

Alerting Abstract ZA ANOVELTY - Production of **humic** substances comprises:

1. introducing raw material in the form of **fossil** fuel and/or a composted organic material into closed reactor vessel (12); and
2. introducing an **acidic** oxidizing agent to the vessel to cause an exothermic chemical reaction which forms a first reaction product, where the chemical reaction is controlled to maintain temperature in the reaction vessel below 180(deg)C.

DESCRIPTION - An INDEPENDENT CLAIM is also included for an apparatus for producing **humic** substances, comprising:

1. a closed reactor vessel in which a reaction for the production of **humic** substances may take place;
2. a neutralizing vessel containing a neutralizing liquid for purifying fumes and gas from the reactor vessel;
3. a first conduit for transferring fumes and gases from the reactor vessel to the neutralizing vessel; and
4. extraction unit for extracting fumes and gases from the reactor vessel and transferring the fumes and gases, via the first conduit, to the neutralizing vessel.

ACTIVITY - Fertilizer.

MECHANISM OF ACTION - None given.

USE - The method is useful for producing **humic** substances.

ADVANTAGE - The method provides unique substances with high quantities of **humic** and fulvic acids available. The supernatant liquid in the **second** step produces **fulvic acid** with high activity of 10%, and the supernatant liquid in the fourth step produces **humic acid** with a high activity of 30%. The scrubber **system ensures** that fumes and gases from the reactions,

are not liberated directly into the atmosphere but are first treated and neutralized to remove organic and ammonium nitrate substances. The by-products of the scrubber system assimilate these organic and ammonium nitrate substances and then can be used in many applications, such as components of plant nutrient mixtures.

DESCRIPTION OF DRAWINGS - The figure is a schematic representation of an apparatus which is used to produce **humic** substances.

12 Closed reactor vessel

13 Scrubber system

22 Valve

28 Lid

42 Scrubber tower

44 Extraction fun

52 Sump

Technology Focus

ORGANIC CHEMISTRY - Preferred Material: The **fossil** fuel is **coal** which has been ground to a median particle size of 50-100 microm and the composted organic material is from animal or plant origin. The raw material is dry.

INORGANIC CHEMISTRY - Preferred Material: The **acidic** oxidizing agent is **nitric acid**. The oxygen source is air or hydrogen peroxide. The **base** is ammonia gas, ammonium hydroxide, sodium **hydroxide** or **potassium hydroxide**. The neutralizing vessel contains ammonium hydroxide or **nitric acid**. The **basic** neutralizing liquid is ammonium hydroxide. The **acidic** neutralizing liquid can be **sulfuric acid**.

Preferred Composition: The ratio of **nitric acid** to raw material is 1:1 by mass.

CHEMICAL ENGINEERING - Preferred Method: The chemical reaction is controlled to maintain the temperature in the reaction vessel to 70-110(deg)C. The temperature of the reaction is controlled by controlling the rate at which the oxidizing agent is added to the reactor. The oxidizing agent is added to the reactor through a bottom inlet, and the reactants are mixed during the course of the reaction. A **sulfuric acid** is added to the raw material before the **acidic** oxidizing agent of the second step is added. An oxygen source is introduced during the chemical reaction. The reactor is sealed from the atmosphere. The first reaction product is dried and milled to form a powder which is used in the bulk blending of dry **fertilizers** or in the granulation process for granular **fertilizer**. The powder is packed into filter bags. In a third step, water is added to the reaction product of the second step, the resulting slurry is mixed, and a supernatant liquid containing **fulvic acid** is separated from insoluble material in the slurry. The insoluble material from the third step, in a fourth step, is treated with a **base** to cause a second chemical reaction to form a second reaction product. In a fifth step, water is added to the second reaction product, the resulting slurry is mixed and supernatant liquid containing **humic acid** is separated from insoluble material in the slurry. After the second step is completed, in a third step, a **base** is added to the first reaction product to cause a chemical reaction to form a third

reaction product. The third reaction product is dried and milled to form a powder, which is used in the blending of dry **fertilizers** or in the granulation process for granular **fertilizer**, or packed. Phosphoric acid is added to the first reaction product. The **base** is added to bring the pH of the first reaction product to approximately 8. A source of potassium and a source of nitrogen are added to the first reaction product to provide a nitrogen-phosphorus-potassium product. Fumes and gasses from the processes are passed through a scrubber system (13) which includes a neutralizing vessel which contains a neutralizing liquid; and a scrubber tower (42) which includes water mist. The apparatus includes a third conduit for transferring fumes and gasses from the neutralizing vessel to the scrubber tower.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05F	S	I		R	20060101

Production of humic substances, by introducing acidic oxidizing agent to reactor vessel containing raw material in form of fossil fuel e.g. coal, and/or composted organic material e.g. plant origin, to cause exothermic chemical reaction Alerting Abstract ... NOVELTY - Production of humic substances comprises... introducing raw material in the form of fossil fuel and/or a composted organic material into closed reactor vessel (12); and introducing an acidic oxidizing agent to the vessel to cause an exothermic chemical reaction which forms a first reaction product, where the... DESCRIPTION - An INDEPENDENT CLAIM is also included for an apparatus for producing humic substances, comprising.... a closed reactor vessel in which a reaction for the production of humic substances may take place; a neutralizing vessel containing a neutralizing liquid for purifying fumes and gas from... ACTIVITY - **Fertilizer**.... USE - The method is useful for producing humic substances.... ADVANTAGE - The method provides unique substances with high quantities of humic and fulvic acids available. The supernatant liquid in the **second** step produces fulvic acid with high activity of 10%, and the supernatant liquid in the fourth step produces humic acid with a high activity of 30%. The scrubber **system ensures** that fumes and gases from the reactions, are not liberated directly into the atmosphere but... DRAWINGS - The figure is a schematic representation of an apparatus. which is used to produce humic substances. **Technology Focus** ORGANIC CHEMISTRY - Preferred Material: The fossil fuel is coal which has been ground to a median particle size of 50-100 microm and the... INORGANIC CHEMISTRY - Preferred Material: The acidic oxidizing agent is nitric acid. The oxygen source is air or hydrogen peroxide. The **base** is ammonia gas, ammonium hydroxide, sodium hydroxide or potassium hydroxide. The

neutralizing vessel contains ammonium hydroxide or nitric acid. The **basic** neutralizing liquid is ammonium hydroxide. The **acidic** neutralizing liquid can be sulfuric acid. ... Preferred Composition: The ratio of nitric acid to raw material is 1:1 by mass... bottom inlet, and the reactants are mixed during the course of the reaction. A sulfuric acid is added to the raw material before the **acidic** oxidizing agent of the second step is added. An oxygen source is introduced during the... and milled to form a powder which is used in the bulk blending of dry **fertilizers** or in the granulation process for granular **fertilizer**. The powder is packed into filter bags. In a third step, water is added to... of the second step, the resulting slurry is mixed, and a supernatant liquid containing fulvic acid is separated from insoluble material in the slurry. The insoluble material from the third step, in a fourth step, is treated with a **base** to cause a second chemical reaction to form a second reaction product. In a fifth... added to the second reaction product, the resulting slurry is mixed and supernatant liquid containing **humic acid** is separated from insoluble material in the slurry... After the second step is completed, in a third step, a **base** is added to the first reaction product to cause a chemical reaction to form a ... dried and milled to form a powder, which is used in the blending of dry **fertilizers** or in the granulation process for granular **fertilizer**, or packed. Phosphoric acid is added to the first reaction product. The **base** is added to bring the pH of the first reaction product to approximately 8. A **Extension Abstract**

Title Terms .../Index Terms/Additional Words: **HUMIC**; ... **ACIDIC**; ... **FOSSIL**; ... **COAL**; **Class Codes**

Dialog eLink: [Order File History](#)

41/34,K/10 (Item 10 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0014521034 *Drawing available*

WPI Acc no: 2004-702980/200469

Agricultural material useful as fertilizer and plant growth promoter comprises material containing humic acid, material containing nutritional element and binder for binding humic acid material and nutritional element material

Patent Assignee: CONSOL CORP KK (CSCS-N)

Inventor: HASHIBA A; KATO Y; NAKAMURA Y

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 2004269280	A	20040930	JP 200358843	A	20030305	200469	B

Priority Applications (no., kind, date): JP 200358843 A 20030305

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
JP 2004269280	A	JA	16	8	

Alerting Abstract JP A

NOVELTY - Agricultural material in the form of granules comprises material containing **humic acid**, material containing nutritional element required for plant growth and binder for binding the **humic acid** material and nutritional element material.

DESCRIPTION - An INDEPENDENT CLAIM is also included for manufacture of agricultural material which involves grinding the material containing **humic acid** to ≤ 0.5 mm, grinding the material containing nutritional element to ≤ 0.5 mm, mixing the obtained **humic acid** powder with nutritional element powder at specific ratio and spraying an aqueous solution containing binder in the mixed powder.

ACTIVITY - **Fertilizer**; Plant Growth Stimulator.

No biological data given.

MECHANISM OF ACTION - None given.

USE - As **fertilizer** and plant growth promoter for promoting growth of agricultural products e.g. tomato.

ADVANTAGE - The agricultural material enables supply of required nutritional elements over large area in soil for prolonged period. The **humic acid** in the material effectively promotes soil permeability of nutritional element required for plant growth.

DESCRIPTION OF DRAWINGS - The figure shows the flowchart of agricultural material production. (Drawing includes non-English language text).

Technology Focus

INORGANIC CHEMISTRY - Preferred Materials: The materials containing **humic acid** are **coal**, lignite, peat, wood **coal** and/or grass peat and the materials containing nutritional element are calcareous **fertilizer** containing calcium carbonate, shell- **fossil fertilizer**, magnesia lime **fertilizer** and lime by-product **fertilizer**. The nutritional elements are iron, magnesium, manganese, potassium, phosphorus and silicon and/or preferably calcium.

ORGANIC CHEMISTRY - Preferred Binder: The binder is starch paste or synthetic paste.

Preferred Dimensions: The particle size of material containing **humic acid** and material containing nutritional element is less than 0.5 mm in both cases. The particle size of agricultural material is 0.5-4 mm.

Preferred Ratio: The blend weight ratio of material containing **humic acid** to the material containing nutritional element is 10:1-1:10.

Extension Abstract

EXAMPLE - No relevant examples given.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
A01G-0007/00	A	I	F	R	20060101
C05G-0001/00	A	I	L	R	20060101
C05G-0003/00	A	I	L	R	20060101
C05G-0005/00	A	I	L	R	20060101
A01G-0007/00	C	I	F	R	20060101
C05G-0001/00	C	I	L	R	20060101
C05G-0003/00	C	I	L	R	20060101
C05G-0005/00	C	I	L	R	20060101

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
A01G-007/00 604 Z			
C05G-001/00			
C05G-003/00 101			
C05G-005/00 Z			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
2B022		
4H061		
4H061	AA01	
4H061	AA02	
4H061	BB21	
4H061	BB51	
4H061	CC04	
4H061	CC07	
4H061	CC08	
4H061	CC11	
4H061	CC14	
4H061	CC15	
4H061	CC20	
4H061	CC21	
4H061	CC31	
4H061	CC57	
4H061	CC58	
4H061	DD01	

2B022	EA01
2B022	EA10
4H061	EE16
4H061	EE37
4H061	EE51
4H061	EE52
4H061	EE62
4H061	EE63
4H061	FF08
4H061	GG13
4H061	GG15
4H061	GG26
4H061	GG41
4H061	HH02
4H061	HH03
4H061	LL15
4H061	LL25

Agricultural material useful as fertilizer and plant growth promoter comprises material containing humic acid, material containing nutritional element and binder for binding humic acid material and nutritional element material Original Titles: AGRICULTURAL MATERIAL CONTAINING HUMIC ACID AND NUTRITION ELEMENT Alerting Abstract ...NOVELTY - Agricultural material in the form of granules comprises material containing humic acid, material containing nutritional element required for plant growth and binder for binding the humic acid material and nutritional element material. ...CLAIM is also included for manufacture of agricultural material which involves grinding the material containing humic acid to ≤ 0.5 mm, grinding the material containing nutritional element to ≤ 0.5 mm, mixing the obtained humic acid powder with nutritional element powder at specific ratio and spraying an aqueous solution containing binder... ...ACTIVITY - **Fertilizer**; Plant Growth Stimulator... ...USE - As **fertilizer** and plant growth promoter for promoting growth of agricultural products e.g. tomato... ...enables supply of required nutritional elements over large area in soil for prolonged period. The humic acid in the material effectively promotes soil permeability of nutritional element required for plant growth... **Technology Focus** INORGANIC CHEMISTRY - Preferred Materials: The materials containing humic acid are coal, lignite, peat, wood coal and/or grass peat and the materials containing nutritional element are calcareous **fertilizer** containing calcium carbonate, shell- **fossil fertilizer**, magnesia lime **fertilizer** and lime by-product **fertilizer**. The nutritional elements are iron, magnesium, manganese, potassium, phosphorus and silicon and/or preferably calcium... ...Preferred Dimensions: The particle size of material containing humic acid and material containing nutritional element is less than 0.5 mm in

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both cases. The... .Preferred Ratio: The blend weight ratio of material containing humic acid to the material containing nutritional element is 10:1-1:10. **Extension Abstract Title Terms .../Index Terms/Additional Words: FERTILISER;HUMIC;ACID; Class Codes**

Dialog eLink: Order File History

41/34,K/11 (Item 11 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0013450200

WPI Acc no: 2003-541502/200351

Composition useful for fertilization and phytoprotective treatment of crops comprises mineral or inorganic fertilizer (e.g. nitrogen, phosphorus), phytoprotective product (e.g. carbofuran, benfuracarb) and co-adjuvant in micro-granular form

Patent Assignee: AGROQUALITA SRL (AGRO-N); BARGIACCHI E (BARG-I); CAPUZZI L (CAPU-I); MIELE S (MIEL-I); RUSSO E (RUSS-I)

Inventor: BARGIACCHI E; CAPUZZI L; MIELE S; RUSSO E

Patent Family (6 patents, 101 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2003045877	A1	20030605	WO 2002EP13554	A	20021128	200351	B
AU 2002352204	A1	20030610	AU 2002352204	A	20021128	200419	E
EP 1451130	A1	20040901	EP 2002787891	A	20021128	200457	E
			WO 2002EP13554	A	20021128		
BR 200214516	A	20041103	BR 200214516	A	20021128	200482	E
			WO 2002EP13554	A	20021128		
US 20050065034	A1	20050324	WO 2002EP13554	A	20021128	200526	E
			US 2004496474	A	20041028		
IT 1326966	B	20050311	IT 2001MI2509	A	20011129	200566	E

Priority Applications (no., kind, date): IT 2001MI2509 A 20011129

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
WO 2003045877	A1	EN	22	0	
National Designated States, Original	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SC SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW				

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Regional Designated States,Original	AT BE BG CH CY CZ DE DK EA EE ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SK SL SZ TR TZ UG ZM ZW															
AU 2002352204	A1	EN			Based on OPI patent						WO 2003045877					
EP 1451130	A1	EN			PCT Application						WO 2002EP13554					
					Based on OPI patent						WO 2003045877					
Regional Designated States,Original	AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI SK TR															
BR 200214516	A	PT			PCT Application						WO 2002EP13554					
					Based on OPI patent						WO 2003045877					
US 20050065034	A1	EN			PCT Application						WO 2002EP13554					

Alerting Abstract WO A1

NOVELTY - A composition for agricultural use in micro-granular form comprises a mineral or inorganic **fertilizer**, a phytoprotective product and a co-adjuvant.

DESCRIPTION - A composition for agricultural use in micro-granular form (having micro-granules with a diameter of 0.1 - 2 (preferably 0.1 - 1.5) mm) comprises a mineral or inorganic **fertilizer**, a phytoprotective product and a co-adjuvant. The co-adjuvant is selected from:

- A. a wax when the phytoprotective product is in solid form;
- B. a stabilizer when the phytoprotective product is in liquid form; or
- C. a mixture of wax or stabilizer.

The stabilizer is selected from hydroxyanisole butylate (BHA), hydroxytoluene butylate (BHT), vegetable epoxylated oils or ester of epoxylated fatty acid or glycol (preferably diethylene glycol, dipropylene glycol, or 2-6C alkylene ether (preferably ether of ethylene, diethylene, propylene or dipropylene glycol)).

ACTIVITY - **Fertilizer**; Plant-Protectant; Pesticide.

One week after application of a product (control) (with no **fertilizer** and no insecticide, and a product (test) with benfuracarb (2%) co-formulated on microgranular **fertilizer** base in an amount of 20 kg/ha by **direct** contact with the seedling roots), ten insects were put on each plant (3 - 4 female and 6 - 7 larvae). After application of products on 5 and 28 day, number of aphids were detected and were found to be 28 and 27 (for control); and 3 and 8 (for test) respectively.

MECHANISM OF ACTION - None given.

USE - The composition is used for **fertilization** and phytoprotective treatment of crops (claimed).

ADVANTAGE - The composition maintains rapid release of the active **fertilizer** principle into the soil with the starter function of the compound and also preserves the agronomic efficacy of the pesticide.

Technology Focus

AGRICULTURE - Preferred Composition:

The phytoprotective products are micro-encapsulated in film-based polyureas.

The plant protective product is a crop pesticide selected from insecticide, acaricide, fungicide, nematocide and/or nematostatic. The pesticide is an animal or a vegetable extract selected from essential oil, garlic extract, nettle extract, macro-algae, pyrethrum, azadirachtin, rotenone, nicotine extract or chitosan.

At least 90% of the micro-granules have a diameter of 0.1 - 0.9 mm.

The composition additionally comprises at least one natural organic **fertilizer**, or **fertilizer** with synthesis nitrogen obtained from aldehyde condensed with urea; silica, volcanic sand, pozzolan, zeolite, sulfate and carbonate, chalk, **leonardite**, humic substance, humate and humic extract; lignin-sulfonate, **starches**, modified and non-modified; cellulose, modified and non-modified, natural vegetable extract, natural or synthetic tannin; and potassium phosphite.

Preferred Components:

The insecticide is a carbamate (preferably carbofuran, benfuracarb, carbosulfan, oxamyl, and/or aldicarb), a neonicotinoid (preferably imidacloprid and/or acetamiprid), a phenylpyrazole (preferably fipronil) and/or a phosphoric ester (preferably chlormephos).

The fungicide is a phenylamide (preferably benalaxyl or its raceme), a triazole (preferably tetraconazole, triticonazole and/or myclobutanil), a thiophanate (preferably thiophanate-methyl), an isophthalonitrile (preferably chlorothalonil) and/or fosetyl aluminum.

The nematocide or nematostatic is a phosphoric ester (preferably cadusafos, fosthiazate and/or ethoprophos).

Preferred Waxes: The waxes are carnauba or candelilla waxes. The waxes incorporate esters of fatty acids.

INORGANIC CHEMISTRY - Preferred Component: The inorganic **fertilizer** is nitrogen, phosphorous, potassium, calcium, magnesium, sulfur, boron, cobalt, copper, iron, manganese, molybdenum, selenium and/or zinc. (Claimed)

More specific compounds are disclosed as ammonium phosphate, ammonium sulfate and the metals are ions of oxides, carbonates, sulfates, chlorides, nitrates and phosphates. Boron is part of a complex or as an oxide.

Extension Abstract

ADMINISTRATION - The composition is applied to soil by localization at the seed, seedling and plant, or by sowing and transplanting of crops (claimed). The composition is applied in an amount of 40 - 45 kg/ha.

EXAMPLE - Mono-ammonium phosphate (60 kg) in powder form, degreased dried blood (33 kg), soluble humates (1 kg), calcium lignin-sulfonate (4 kg) were mixed with each other in powder mixer. After mixing, the whole mixture was charged into a rotating granulator, where certain quantity of water was sprayed in and the mixture was dried and sieved. Any possible granules with lower or higher dimensions were recycled in a subsequent charge having the same composition. These granules were used as substrate on which a mixture of technical benfuracarb dispersed in epoxilade

soybean oil B was sprayed. Thus, benfuracarb (2%) was obtained in the end-product.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05D-011/00			Main		"Version 7"
C05G-0003/00	A	I		R	20060101
C05G-0003/02	A	I		R	20060101
C05G-0003/00	C	I		R	20060101
C05G-0003/02	C	I		R	20060101

ECLA: C05G-003/00B2H, C05G-003/00B8, C05G-003/02

US Classification, Current Main: 504-367000; Secondary: 71-064030

US Classification, Issued: 504367, 7164.03

Composition useful for fertilization and phytoprotective treatment of crops comprises mineral or inorganic fertilizer (e.g. nitrogen, phosphorus), phytoprotective product (e.g. carbofuran, benfuracarb) and co-adjuvant in micro... .Original Titles: MICRO-GRANULAR COMPOSITION WITH A COMBINED FERTILIZING AND PHYTO-PROTECTIVE ACTION... .COMPOSITION MICROGRANULAIRE DOTEE D'UNE ACTION PHYTOPROTECTRICE ET FERTILISANTE COMBINEE... .Micro-granular composition with a combined fertilizing and phyto-protective action... .MICRO-GRANULAR COMPOSITION WITH A COMBINED FERTILIZING AND PHYTO-PROTECTIVE ACTION... .COMPOSITION MICROGRANULAIRE DOTEE D'UNE ACTION PHYTOPROTECTRICE ET FERTILISANTE COMBINEE

Alerting Abstract ...NOVELTY - A composition for agricultural use in micro-granular form comprises a mineral or inorganic fertilizer, a phytoprotective product and a co-adjuvant. ... of 0.1 - 2 (preferably 0.1 - 1.5) mm) comprises a mineral or inorganic fertilizer, a phytoprotective product and a co-adjuvant. The co-adjuvant is selected from... . from hydroxyanisole butylate (BHA), hydroxytoluene butylate (BHT), vegetable epoxylated oils or ester of epoxylated fatty acid or glycol (preferably diethylene glycol, dipropylene glycol, or 2-6C alkylene ether (preferably ether of ethylene, diethylene, propylene or dipropylene glycol... .

ACTIVITY - Fertilizer; Plant-Protectant; Pesticide.... . One week after application of a product (control) (with no fertilizer and no insecticide, and a product (test) with benfuracarb (2%) co-formulated on microgranular fertilizer base in an amount of 20 kg/ha by direct contact with the seedling roots), ten insects were put on each plant (3 - 4 female... .

USE - The composition is used for fertilization and phytoprotective treatment of crops (claimed).... .

ADVANTAGE - The composition maintains rapid release of the active fertilizer principle into the soil with the starter function of the compound and also

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preserves the agronomic efficacy of the pesticide. **Technology Focus** ... The composition additionally comprises at least one natural organic **fertilizer**, or **fertilizer** with synthesis nitrogen obtained from aldehyde condensed with urea; silica, volcanic sand, pozzolan, zeolite, sulfate and carbonate, chalk, **leonardite**, humic substance, humate and humic extract; lignin-sulfonate, **starches**, modified and non-modified; cellulose, modified and non-modified, natural vegetable extract, natural or synthetic... **Preferred Waxes**: The waxes are carnauba or candelilla waxes. The waxes incorporate esters of fatty acids. ... **INORGANIC CHEMISTRY** - **Preferred Component**: The inorganic **fertilizer** is nitrogen, phosphorous, potassium, calcium, magnesium, sulfur, boron, cobalt, copper, iron, manganese, molybdenum, selenium and **Extension Abstract Title Terms** .../Index Terms/Additional Words: **FERTILISATION**; ... **FERTILISER**; **Class Codes** Original Publication Data by Authority Argentina Publication No. **Original Abstracts**: The present invention relates to a micro-granular composition with a combined **fertilizing** and phyto-protective activity wherein the diameter of the granules ranges from 0.1 to 2 mm and in which there is a combination of **fertilizers** and phyto-protective agents, suitably co-formulated thanks to the presence of co-adjuvants capable of maximizing the agronomic... The present invention relates to a micro-granular composition with a combined **fertilizing** and phyto-protective activity wherein the diameter of the granules ranges from 0.1 to 2 mm and in which there is a combination of **fertilizers** and phyto-protective agents, suitably co-formulated thanks to the presence of co-adjuvants capable of maximizing the agronomic efficacy and/or efficiency of... The present invention relates to a micro-granular composition with a combined **fertilizing** and phyto-protective activity wherein the diameter of the granules ranges from 0.1 to 2 mm and in which there is a combination of **fertilizers** and phyto-protective agents, suitably co-formulated thanks to the presence of co-adjuvants capable of maximizing the agronomic efficacy and/or efficiency of the above composition. The composition... La presente invention concerne une composition microgranulaire dotée d'une activité phytoprotectrice et **fertilisante** combinée, le diamètre des granules étant compris entre 0,1 et 2 mm. Dans cette composition, il existe une combinaison de **fertilisants** et d'agents phytoprotecteurs, co-préparés de manière appropriée, grâce à la présence de co-adjuvants capables de maximiser l'efficacité agronomique de la composition susmentionnée. Cette composition est appropriée à la localisation au... **Claims**: granules with a diameter ranging from 0.1 to 2 mm comprising a mineral/inorganic **fertilizer**, a phyto-protective product and a co-adjuvant **characterised** by the fact that said co-adjuvant is selected from i) a wax when said... the group comprising hydroxyanisobutylate (BHA), hydroxytoluenebutylate (BHT), vegetable epoxylated oils and esters of epoxylated fatty acid, a glycol, preferably diethylene glycol, dipropylene glycol, a C2-C6 alkylene ether preferably ether of ethylene, diethylene, propylene, dipropylene glycol and mixtures thereof. iii) mixtures of i) and...

Dialog eLink: Order File History

41/34,K/12 (Item 12 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0013423379

WPI Acc no: 2003-514043/200348

Preparation of extract rich in humic and non-humic materials, useful as soil conditioner, by alkaline extraction of organic and mineral sources

Patent Assignee: ANAYA-OLVERA A (ANAY-I); BIOTECNOLOGIA ORGANICA SA DE CV (BIOT-N)

Inventor: ANAYA OLVERA A; ANAYA-OLVERA A

Patent Family (5 patents, 95 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2003052028	A1	20030626	WO 2001MX91	A	20011218	200348	B
AU 2002219702	A1	20030630	WO 2001MX91	A	20011218	200420	E
			AU 2002219702	A	20011218		
US 20040261481	A1	20041230	WO 2001MX91	A	20011218	200503	E
			US 2004495422	A	20040520		
MX 2004005054	A1	20040901	WO 2001MX91	A	20011218	200553	E
			MX 20045054	A	20040527		
US 7510590	B2	20090331	WO 2001MX91	A	20011218	200923	E
			US 2004495422	A	20040520		

Priority Applications (no., kind, date): WO 2001MX91 A 20011218

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes															
WO 2003052028	A1	ES	19	0																
National Designated States,Original	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN																			
	CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH																			
	GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR																			
	LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT																			
	RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US																			
	UZ VN YU ZA ZW																			
Regional Designated States,Original	AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT																			
	KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG																			
	ZM ZW																			
AU 2002219702	A1	EN			PCT Application										WO 2001MX91					
					Based on OPI patent										WO 2003052028					
US 20040261481	A1	EN			PCT Application										WO 2001MX91					
MX 2004005054	A1	ES			PCT Application										WO 2001MX91					
					Based on OPI patent										WO 2003052028					

US 7510590	B2	EN		PCT Application	WO 2001MX91
				Based on OPI patent	WO 2003052028

Alerting Abstract WO A1

NOVELTY - Preparation of extract (A) rich in both **humic** and non- **humic** substances by alkaline extraction of organic (S1) and mineral sources.

DESCRIPTION - Preparation of extract (A) rich in both **humic** and non-**humic** substances comprises first preparing an alkaline extract (E) by stirring an organic source (S1) with 0.1-0.5 N alkaline solution at ratio (weight:volume) of 1:3-7 for long enough to extract active ingredients from S1. The supernatant is separated and the residue made up to volume with water and stirring continued to recover residual active ingredients. The supernatant from this step is combined with that from the first extraction to give a solution of pH 11.5-13.5. The residual alkalinity in this solution is exploited to solubilize active compounds in a mineral source (S2), to produce a second **humic** extract, by mixing S2, the extract of S1 and second alkaline solution (4.5-6.5 N) at weight:volume:volume ratio 1:1:0.1 to 1:5:1, so that pH is 12.5-13.5, to obtain (A).

An INDEPENDENT CLAIM is also included for (A) prepared this way.

ACTIVITY - **Fertilizer**.

No biological data is given.

MECHANISM OF ACTION - None given.

USE - (A) is useful as soil conditioner and physiological activator of plants.

ADVANTAGE - (A) has better viscosity and adherence properties and higher content of active substances and biological activity (synergism) compared with known products that are physical mixtures of extracts. It improves water retention and aeration of soils; facilitates working, reduces erosion and improves quality of seed beds; increases nitrogen content, neutralizes **acidity** or alkalinity, improves ion-exchange capacity and mineral absorption, retains soil nutrients in the rhizosphere and releases them as required; and accelerates cell division, plant growth and seed germination; provides a good environment for desirable microorganisms; increases vitamin contents of plants, longitudinal growth of root and production of enzymes; potentiates photosynthesis and improves tolerance of plants to drought.

Technology Focus

BIOLOGY - Preferred Product: (A) may be enriched by adding other nutrients (standard **fertilizers**).

Preferred Process: The first extraction is at ratio 1:5 and the second at 1:3:0.5. The second alkaline solution may be complemented with another, more concentrated alkaline solution, or with solid, to provide additional concentration of **humic** products. Especially the first and second alkaline solutions have concentrations 0.35 and 5.8 N, respectively.

Preferred Materials: S2 is a **fossil** fuel of the lignite type and S1 is e.g. plant turf or (worm) compost.

INORGANIC CHEMISTRY - Preferred Process: Both first and second alkaline

solutions contain potassium (preferred), ammonium or sodium hydroxides.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05F-0011/02	A	I		R	20060101
C05F-0015/00	A	I		R	20060101
C05G-0003/00	A	I		R	20060101
C10F-0007/00	A	I		R	20060101
C05F-0011/02	A	I	L	B	20060101
C05F-0015/00	A	I	F	B	20060101
C05F-0003/00	A	I	L	B	20060101
C05F-0009/04	A	I	L	B	20060101
C05F-0011/00	C	I		R	20060101
C05F-0015/00	C	I		R	20060101
C05G-0003/00	C	I		R	20060101
C10F-0007/00	C	I		R	20060101
C05F-0011/00	C	I		B	20060101
C05F-0015/00	C	I		B	20060101
C05F-0003/00	C	I		B	20060101
C05F-0009/00	C	I		B	20060101

ECLA: C05F-011/02+G3/00B10, C05G-003/00B10

US Classification, Current Main: 71-024000, 71-011000; Secondary:
71-014000, 71-021000, 71-024000

US Classification, Issued: 7124, 7111, 7124, 7121, 7114

Preparation of extract rich in humic and non-humic materials, useful as soil conditioner, by alkaline extraction of organic and mineral sources

Original Titles: Method of obtaining a concentrate humic extract from organic and inorganic sources... .Method of obtaining a concentrate humic extract from organic and inorganic sources... .METHOD OF OBTAINING A CONCENTRATED HUMIC EXTRACT FROM ORGANIC AND INORGANIC SOURCES... .OBTENCION DE UN EXTRACTO HUMICO CONCENTRADO A PARTIR DE FUENTES ORGANICAS E INORGANICAS Alerting Abstract ...NOVELTY -

Preparation of extract (A) rich in both humic and non- humic substances by alkaline extraction of organic (S1) and mineral sources. DESCRIPTION - Preparation of extract (A) rich in both humic and non- humic substances comprises first preparing an alkaline extract (E) by stirring an organic source (S1) with... .is exploited to solubilize active compounds in a mineral source (S2), to produce a second humic extract, by mixing S2, the extract of S1 and second alkaline solution (4.5-6... .ACTIVITY - Fertilizer. ...soils; facilitates working, reduces erosion and improves quality of seed beds; increases nitrogen content, neutralizes

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acidity or alkalinity, improves ion-exchange capacity and mineral absorption, retains soil nutrients in the rhizosphere **Technology Focus**
BIOLOGY - Preferred Product: (A) may be enriched by adding other nutrients (standard **fertilizers**). ... complemented with another, more concentrated alkaline solution, or with solid, to provide additional concentration of **humic** products. Especially the first and second alkaline solutions have concentrations 0.35 and 5.8... Preferred Materials: S2 is a **fossil** fuel of the lignite type and S1 is e.g. plant turf or (worm) compost **Extension Abstract Title Terms** .../Index Terms/Additional Words: **HUMIC**; **Class Codes** Original Publication Data by

Authority Argentina **Publication No. Original Abstracts:** A process to obtain a **humic** extract that concentrates features of liquid extracts from mineral and organic sources is provided by first elaborating a **humic** extract from a first organic source by using an extracting alkaline solution and by utilizing... A process to obtain a **humic** extract that concentrates features of liquid extracts from mineral and organic sources is provided by first elaborating a **humic** extract from a first organic source by using an extracting alkaline solution and by utilizing... The invention relates to a method of obtaining a **humic** extract from mineral and organic sources which can be used to concentrate the liquid extract characteristics of same. The inventive method consists in, first, obtaining a **humic** extract from a first organic source using an alkaline extraction solution and, subsequently, using the... **Claims:** 1. A process to obtain an extract rich in **humic** and non-**humic** substances comprising the steps of: a) obtaining a first alkaline extract by combining an organic... of the first extract, solubilize active ingredients from a mineral source to obtain a second **humic** extract, by mixing with constant agitation a mineral source, the first alkaline extract and the... maximum values of 12.5 and 13.5 respectively, to obtain an extract rich in **humic** and non-**humic** substances... is: 1. A process for preparing an enriched extract rich in alkali metal salts of **humic acids** from various sources of **humic** substances for modifying and improving plant growing as said enriched extract comprises the most possible... the steps of: a) obtaining a first alkaline extract by combining a first source of **humic** substances selected from the group of organic sources consisting of peat, manure, compost and worm compost; or from the group of mineral sources consisting of **leonardite** and other lignite-type **fossil** carbons and derivatives thereof, with an alkaline solution with agitation and for time sufficient to... insoluble materials; c) adding to these first extracts, with constant agitation, a second source of **humic** substances different from the first source, selected from the group of organic sources consisting of peat, manure, compost and worm compost; or from the group of mineral sources consisting of **leonardite** and other lignite-type **fossil** carbons and derivatives thereof, together with another alkaline solution in order to obtain an enriched extract having alkali metal salts of **humic acids** from both first and second sources; and d) wherein residual alkalinity of the first extract...

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41/34,K/13 (Item 13 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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WPI Acc no: 2002-723155/200278

Preparation of mixture of aspartic acid and salt of aspartic acid, for preparing imide containing polyamino acids, involves drying solution comprising salt of aspartic acid having cation that volatilizes during drying

Patent Assignee: FOLIA INC (FOLI-N); RINGSDORF L (RING-I); SIKES C S (SIKE-I); SWIFT G (SWIF-I); UNIV SOUTH ALABAMA (UYSA-N)

Inventor: DOLL K M; RINGSDORF L; SHOGREN R L; SIKES C S; SIKES S C; SWIFT G; WESTMORELAND D G; WILLETT J L

Patent Family (13 patents, 97 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
WO 2002062871	A2	20020815	WO 2002US3182	A	20020206	200278	B
US 20020161171	A1	20021031	US 2001776897	A	20010206	200279	E
US 6495658	B2	20021217	US 2001776897	A	20010206	200307	E
US 20030125510	A1	20030703	US 2001776897	A	20010206	200345	E
			US 2002307349	A	20021202		
EP 1368410	A2	20031210	EP 2002717387	A	20020206	200382	E
			WO 2002US3182	A	20020206		
US 6686440	B2	20040203	US 2001776897	A	20010206	200413	E
			US 2002307349	A	20021202		
AU 2002248396	A1	20020819	AU 2002248396	A	20020206	200427	E
KR 2004010587	A	20040131	KR 2003710373	A	20030806	200436	E
JP 2004217937	A	20040805	JP 2002563217	A	20020206	200451	E
			JP 200473652	A	20040316		
KR 2004030916	A	20040409	KR 2004701654	A	20040202	200453	E
CN 1500110	A	20040526	CN 2002807870	A	20020206	200458	E
JP 2004530735	W	20041007	JP 2002563217	A	20020206	200466	E
			WO 2002US3182	A	20020206		
CN 1657552	A	20050824	CN 2002807870	A	20020206	200604	E
			CN 200410085130	A	20020206		

Priority Applications (no., kind, date): US 2001776897 A 20010206; US 2002307349 A 20021202

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
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WO 2002062871	A2	EN	75	17		
National Designated States, Original	AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PH PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW					
Regional Designated States, Original	AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW					
US 20030125510	A1	EN			Continuation of application	US 2001776897
					Continuation of patent	US 6495658
EP 1368410	A2	EN			PCT Application	WO 2002US3182
					Based on OPI patent	WO 2002062871
Regional Designated States, Original	AL AT BE CH CY DE DK ES FI FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI TR					
US 6686440	B2	EN			Continuation of application	US 2001776897
					Continuation of patent	US 6495658
AU 2002248396	A1	EN			Based on OPI patent	WO 2002062871
JP 2004217937	A	JA	37		Division of application	JP 2002563217
JP 2004530735	W	JA	118		PCT Application	WO 2002US3182
					Based on OPI patent	WO 2002062871
CN 1657552	A	ZH			Division of application	CN 2002807870

Alerting Abstract WO A2

NOVELTY - Preparation of mixture of aspartic **acid** and a salt of aspartic **acid**, involves drying a solution of aspartic **acid** having a non-volatilizabile cation and a salt of aspartic **acid** having a cation which at least partially volatilizes to provide free aspartic **acid** during drying.

DESCRIPTION - INDEPENDENT CLAIMS are also included for:

1. a mixture of aspartic **acid** and salt of aspartic **acid**;
2. a solution of salt of aspartic **acid** having non-volatilizabile cation and salt of aspartic **acid** having a volatilizable cation;
3. a method for preparing a copolymer containing copolymerized aspartate units and succinimide units which involves polymerizing copolymer mixture of aspartic **acid** and aspartic **acid** salt, by heating. The comonomer mixture is prepared by drying a solution of aspartic **acid** having non-volatilizabile cation and salt of aspartic **acid** having volatilizable cation;
4. a copolymer containing copolymerized aspartate units and succinimide units;
5. a composition for use in a method requiring a polymeric material, comprising copolymer and an acceptable adjuvant;
6. a method for treating hair or fibers;

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7. a method for treating water;
8. a method for applying a coating comprising a copolymer, on an article;
9. a method for preparing a detergent composition;
10. a method for preparing cosmetics;
11. a method for preparing a cementitious material;
12. a method for reducing scaling in water-containing composition;
13. a method for reducing corrosion on surface;
14. a method for preparing paper product;
15. a super absorbent material; and
16. a method for gelling or thickening a composition.

USE - For preparing copolymers used for producing novel imide containing polyamino acids which are used for antifreezes, antiscalants, boiler water, cooling water, desalinators, fruit/sugar extraction, oilfield, reverse osmosis membranes, antistatics, adhesives, bio-absorbable medical devices, biological coatings, antiproteolytic, antihydrolytic, cationic toxin suppressants, cell and tissue encapsulation, cellular adhesion inhibitors and promoters, coatings for food materials, immunosuppressants, pharmaceutical carriers, blood plasma expanders, botanical additives, herbicide absorption enhancers, plant growth enhancers, plant growth factors, plant freshness preservatives, carriers of therapeutic agents, chelants, sequestrants, chromatographic agents, conditioners, controlled release, biocides, drugs, flavors, fragrances, corrosion inhibitors, cosmetics, detergents and cleansers, anti-redeposition agents, builders, color protectants, dye-transfer inhibitors, fragrance retaining aids, liquid laundry dispersants, powdered laundry dispersants, soil release agents, dispersants, cement, ceramic and metal particles, coal, drilling mud, inks, milling, pigments, dye-levelers, emulsion stabilizers, fertilizers, fiber treatment agents, carpets, clothes, foaming agents, hair products, flame and fire retardants, flocculents, foam inhibitors, foam stabilizers, fungicides, gas hydrate inhibitors, gelling materials, agricultural uses, fibers, films, food related uses, sanitary articles, water sealing agents, hair curling agents, strengtheners, humectants, industrial coatings, binders, removable coatings, smoothing, glossing agents, spreading, adhesion agents, insecticide enhancers, ion exchange resins, leather auxiliary compounds, lipid lowering agents, lubricants, metal cleansing fluids, metal working fluids, microbiocides, molded material components, odor control substances, oil absorbents, paper products, dewatering agents, strength enhancers, suspension agents, shampoos and lotions, surfactants, tartar control, thickening agents, tissue-engineering scaffolding and viscosity modifiers.

ADVANTAGE - The mixture of aspartic acid and salt of aspartic acid, enables to form true copolymer having significant amount of both amide and imide units. The copolymers have favorable water solubility, and can be economically and ecologically used for wide applications. The copolymers enable to form biodegradable polymer or polymer adjusted for specific use. The mixture of aspartic acid and salt of aspartic acid is clear, glassy solid if dried in vacuum or oxygen free atmosphere, and

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pale yellow and glassy when dried in oxygen atmosphere.

Technology Focus

ORGANIC CHEMISTRY - Preferred Salts: The salt of aspartic acid having a cation which does not volatilize, is an alkali metal or alkaline earth metal salt. The aspartic acid salt which volatilizes at least partially (SV), is an ammonium or amine salt, preferably ammonium salt. The salt of aspartic acid which does not volatilize (SNV), is a sodium salt. At least 95 wt.% of SV is volatilized to free aspartic acid during drying.

Preferred Composition: Mixture of aspartic acid and salt of aspartic acid, comprises free aspartic acid and SNV in molar ratio of 1:4-4:1, preferably 1:1.

Extension Abstract

EXAMPLE - (In g) A solution of aspartic acid (6.65) in water (50 ml), was added with ammonium hydroxide (32 ml) to convert aspartic acid to monoammonium aspartate. The resulting solution was added with monosodium aspartate (8.65), and the solution was oven dried at 120(deg)C to form a comonomeric composition in the form of a solid, clear, glassy puck. The comonomeric composition was thermally polymerized at 220(deg)C for 2 hours in a vacuum oven at 50 mm of Hg. The polymerization was accompanied by an increase in mass due to the evolution of condensed water. The product was retrieved from the oven and hardened.

The resulting product was hardened for 1 hour to obtain the polymer. The polymer obtained was beige in color and water soluble. The yield was 11.3 g. The polymer was found to have molecular weight of 1200.

The yield of product copolymer of aspartate and succinimide at 11.3 g was 73% of the total amount of reactant monomer. This was equivalent to 97% of theoretical yield.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C08G-073/10; C08G-063/44			Main		"Version 7"
A61K-007/00; A61K-007/06; A61K-007/075; A61K-007/08; A61K-007/48; C11D-003/37; D21H-017/54; C08G-069/10; C09D-179/08; C09J-179/08			Secondary		"Version 7"

A61K-0008/00	A	I	L	R	20060101			
A61K-0008/72	A	I	F	R	20060101			
A61Q-0019/00	A	I	L	R	20060101			
A61Q-0005/00	A	I	L	R	20060101			
A61Q-0005/02	A	I	L	R	20060101			
A61Q-0005/12	A	I	L	R	20060101			
C07C-0227/40	A	I		R	20060101			
C07C-0229/24	A	N		R	20060101			
C08G-0069/10	A	I	L	R	20060101			
C08G-0073/10	A	I		R	20060101			
C09D-0179/08	A	I	L	R	20060101			
C09J-0179/08	A	I	L	R	20060101			
A61K-0008/00	C	I	L	R	20060101			
A61K-0008/72	C	I	F	R	20060101			
A61Q-0019/00	C	I	L	R	20060101			
A61Q-0005/00	C	I	L	R	20060101			
A61Q-0005/02	C	I	L	R	20060101			
A61Q-0005/12	C	I	L	R	20060101			
C07C-0227/00	C	I		R	20060101			
C07C-0229/00	C	N		R	20060101			
C08G-0069/00	C	I	L	R	20060101			
C08G-0073/00	C	I		R	20060101			
C09D-0179/00	C	I	L	R	20060101			
C09J-0179/00	C	I	L	R	20060101			

ECLA: A61K-008/88, A61Q-019/00, C07C-227/40, C08G-073/10T

ICO: M07C-229:24

US Classification, Current Main: 528-363000; Secondary: 528-328000

US Classification, Issued: 528363, 528328, 528363, 528363, 528328, 528363, 528328

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
A61K-007/00 J			
A61K-007/06			
A61K-007/075			
A61K-007/08			
A61K-007/48			
C08G-069/10			
C08G-073/10			
C09D-179/08 Z			

C09J-179/08 Z

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4C083		
4J001		
4J038		
4J040		
4J043		
4C083	AD07	1
4C083	CC02	
4C083	CC33	
4C083	CC38	
4J001	DA01	
4J001	DB02	
4J001	DB03	
4J001	DB05	
4J001	DB06	
4J001	DB07	
4J001	DC07	
4J001	DC11	
4J038	DJ02	1
4J001	EA33	
4J001	EA36	
4J001	EA37	
4J001	EE53	A
4J001	EE53	C
4J001	EE72	C
4J001	EE76	C
4J001	EE83	C
4J040	EH03	1
4J001	FA05	
4C083	FF01	
4J038	GA08	
4J001	GA11	
4J001	GA13	
4J040	GA17	
4J001	GB01	
4J001	GB02	
4J001	GB05	
4J001	GB11	

4J001	JA10
4J001	JA12
4J001	JA17
4J001	JA18
4J001	JA20
4J001	JB01
4J001	JB31
4J001	JC01
4J038	LA01
4J043	PA04
4J043	PA08
4J043	PA09
4J043	PA11
4J040	QA01
4J043	QB05
4J043	QB06
4J043	RA05
4J043	RA33
4J043	RA34
4J043	SA05
4J043	SA62
4J043	SA66
4J043	SB02
4J043	XA02
4J043	XA03
4J043	XA06
4J043	XA12
4J043	XA13
4J043	XA15
4J043	XB27
4J043	YB11
4J043	YB32
4J043	YB37
4J043	YB40
4J043	YB42
4J043	ZA01
4J043	ZA22
4J043	ZB01
4J043	ZB03
4J043	ZB05
4J043	ZB06
4J043	ZB11

4J043	ZB32
4J043	ZB33
4J043	ZB34
4J043	ZB35
4J043	ZB41
4J043	ZB42
4J043	ZB44
4J043	ZB45
4J043	ZB51
4J043	ZB60

Preparation of mixture of aspartic acid and salt of aspartic acid, for preparing imide containing polyamino acids, involves drying solution comprising salt of aspartic acid having cation that volatilizes during drying ...Original Titles:COMONOMER COMPOSITIONS FOR PRODUCTION OF IMIDE-CONTAINING POLYAMINO ACIDSCOMPOSITIONS COMONOMERES POUR LA PRODUCTION D'ACIDES POLYAMINO CONTENANT DES IMIDES... ..COMONOMER COMPOSITION FOR PRODUCING IMIDE-CONTAINING POLYAMINO ACIDComonomer compositions for production of imide-containing polyamino acidsComomer compositions for production of imide-containing polyamino acidsComonomer compositions for production of imide-containing polyamino acidsCOMONOMER COMPOSITIONS FOR PRODUCTION OF IMIDE-CONTAINING POLYAMINO ACIDSCOMPOSITIONS COMONOMERES POUR LA PRODUCTION D'ACIDES POLYAMINO CONTENANT DES IMIDES **Alerting Abstract** ...NOVELTY - Preparation of mixture of aspartic acid and a salt of aspartic acid, involves drying a solution of aspartic acid having a non-volatilizable cation and a salt of aspartic acid having a cation which at least partially volatilizes to provide free aspartic acid during drying. ... a mixture of aspartic acid and salt of aspartic acid; a solution of salt of aspartic acid having non-volatilizable cation and salt of aspartic acid having a volatilizable cation; a method for preparing a copolymer containing copolymerized aspartate units and succinimide units which involves polymerizing copolymer mixture of aspartic acid and aspartic acid salt, by heating. The comonomer mixture is prepared by drying a solution of aspartic acid having non-volatilizable cation and salt of aspartic acid having volatilizable cation; a copolymer containing copolymerized aspartate units and succinimide units; a composition for... .. USE - For preparing copolymers used for producing novel imide containing polyamino acids which are used for antifreezes, antiscalants, boiler water, cooling water, desalinators, fruit/sugar extraction, oilfield... .. redeposition agents, builders, color protectants, dye-transfer inhibitors, fragrance retaining aids, liquid laundry dispersants, powdered laundry dispersants, soil release agents, dispersants, cement, ceramic and metal particles, coal, drilling mud, inks, milling, pigments, dye-levelers, emulsion stabilizers, **fertilizers**, fiber treatment agents, carpets, clothes,

foaming agents, hair products, flame and fire retardants, flocculents, foam... . ADVANTAGE - The mixture of aspartic acid and salt of aspartic acid, enables to form true copolymer having significant amount of both amide and imide units. The... . enable to form biodegradable polymer or polymer adjusted for specific use. The mixture of aspartic acid and salt of aspartic acid is clear, glassy solid if dried in vacuum or oxygen free atmosphere, and pale yellow... **Technology Focus** ORGANIC CHEMISTRY - Preferred Salts: The salt of aspartic acid having a cation which does not volatilize, is an alkali metal or alkaline earth metal salt. The aspartic acid salt which volatilizes at least partially (SV), is an ammonium or amine salt, preferably ammonium... .The salt of aspartic acid which does not volatilize (SNV), is a sodium salt. At least 95 wt.% of SV is volatilized to free aspartic acid during drying... .Preferred Composition: Mixture of aspartic acid and salt of aspartic acid, comprises free aspartic acid and SNV in molar ratio of 1:4-4:1, preferably 1:1. **Extension Abstract** EXAMPLE - (In g) A solution of aspartic acid (6.65) in water (50 ml), was added with ammonium hydroxide (32 ml) to convert aspartic acid to monoammonium aspartate. The resulting solution was added with monosodium aspartate (8.65), and the... **Title Terms** .../Index Terms/Additional Words: **ACID**; **Class Codes** Original Publication Data by Authority Argentina **Publication No. Original Abstracts:** Described are monomer compositions containing aspartic acid and other comonomers, such as monosodium aspartate, and methods for their production. The monomer compositions can be polymerized, particularly by thermal polymerization, to obtain useful and novel imide-containing polyamino acids, i.e., copolymers containing polymerized aspartate units and succinimide units. The invention is also directed... . polymeric materials, their methods of production, and their uses. Uses of the imide-containing polyamino acids include, for example, dispersant in detergent and cleansers, water-treatment chemicals as anti-scalants and... . Described are monomer compositions containing aspartic acid and other comonomers, such as monosodium aspartate, and methods for their production. The monomer compositions can be polymerized, particularly by thermal polymerization, to obtain useful and novel imide-containing polyamino acids, i.e., copolymers containing polymerized aspartate units and succinimide units. The invention is also directed... . polymeric materials, their methods of production, and their uses. Uses of the imide-containing polyamino acids include, for example, dispersants in detergents and cleansers, water-treatment chemicals as anti-scalants and... . Described are monomer compositions containing aspartic acid and other comonomers, such as monosodium aspartate, and methods for their production. The monomer compositions can be polymerized, particularly by

thermal polymerization, to obtain useful and novel imide-containing polyamino acids, i.e., copolymers containing polymerized aspartate units and succinimide units. The invention is also directed... polymeric materials, their methods of production, and their uses. Uses of the imide-containing polyamino acids include, for example, dispersants in detergents and cleansers, water-treatment chemicals as anti-scalants and... Described are monomer compositions containing aspartic acid and other comonomers, such as monosodium aspartate, and methods for their production. The monomer compositions can be polymerized, particularly by thermal polymerization, to obtain useful and novel imide-containing polyamino acids, i.e., copolymers containing polymerized aspartate units and succinimide units. The invention is also directed... polymeric materials, their methods of production, and their uses. Uses of the imide-containing polyamino acids include, for example, dispersants in detergents and cleansers, water-treatment chemicals as anti-scalants and... Described are monomer compositions containing aspartic acid and other comonomers, such as monosodium aspartate, and methods for their production. The monomer compositions can be polymerized, particularly by thermal polymerization, to obtain useful and novel imide-containing polyamino acids, i.e., copolymers containing polymerized aspartate units and succinimide units. The invention is also directed... polymeric materials, their methods of production, and their uses. Uses of the imide-containing polyamino acids include, for example, dispersant in detergent and cleansers, water-treatment chemicals as anti-scalants and... L'invention concerne des compositions monomeres contenant de l'acide aspartique et d'autres comonomeres, tels que de l'aspartate de monosodium, et des procedes... production. Les compositions monomeres peuvent etre polymerisees, notamment par polymerisation thermique, pour obtenir de nouveaux acides polyamino contenant des imides, c'est-a-dire des copolymeres contenant des unites d'aspartateprocedes de production et leurs utilisations. Les acides polyamino contenant des imides peuvent, par exemple, s'utiliser comme dispersants dans des detergents et...

Claims:We claim:1. A method for preparing a mixture of aspartic acid and a salt of aspartic acid which comprises:drying a solution of a salt of aspartic acid having a cation which does not volatilize during the drying and a salt of aspartic acid having a cation which at least partially volatilizes to provide free aspartic acid during the drying... We claim:1. A method for preparing a mixture of aspartic acid and a salt of aspartic acid which comprises:drying a solution of a salt of aspartic acid having a cation which does not volatilize during the drying and a salt of aspartic acid having a cation which at least partially volatilizes to provide free aspartic acid during the drying... We claim:1. A method for preparing a mixture of aspartic acid and a salt of aspartic acid which comprises:drying a solution of a salt of aspartic acid having a cation which does not volatilize during the drying and a salt of aspartic acid having a cation which at least partially volatilizes to provide free aspartic acid during the drying... aspartate units and succinimide units which comprises:heating to polymerize a comonomer mixture of aspartic acid and a salt of aspartic acid, which comonomer mixture was prepared by drying a solution of salt of aspartic acid having a cation which does not volatilize during the

drying and a salt of aspartic acid having a cation which at least partially volatilizes to free aspartic acid during the drying to form a copolymer;derivatizing said copolymer by reacting an amino group...

Dialog eLink: Order File History

41/34,K/14 (Item 14 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0011233464

WPI Acc no: 2002-172961/200223

Composition for increasing the nutritional quality of vegetables comprises solution of selenium and vanadium salts

Patent Assignee: CONSORZIO BUONE IDEE SCRL (CONS-N); CONSORZIO PATATA TIPICA DI BOLOGNA (CONS-N)

Inventor: PIFFERI P; PIFFERI P G; POGGI V; QUAGLIANO R

Patent Family (2 patents, 26 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 1153901	A2	20011114	EP 2001111424	A	20010510	200223	B
IT 1321254	B	20040108	IT 2000BO277	A	20000511	200437	E

Priority Applications (no., kind, date): IT 2000BO277 A 20000511

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
EP 1153901	A2	EN	8	0	
Regional	AL AT BE CH CY DE DK ES FI FR				
Designated	GB GR IE IT LI LT LU LV MC MK				
States,Original	NL PT RO SE SI TR				

Alerting Abstract EP A2

NOVELTY - A composition comprises aqueous solution of selenium salts (a) (0.005 mg - 20 g) and vanadium salts (b) (0.0005 mg - 3 g).

USE - For increasing the nutritional quality of vegetables including horticulture products such as potatoes, tomatoes, egg plants, carrots, broccolis, fennels, cauliflowers, artichokes, radishes, peppers, onions, garlic, beets, lettuces, succory, chicory, courgettes, industrial oleiferous crops such as soy, colza, sunflower, sugar crops such as sugar beet or sugar reed, cereals such as red pepper, pepper, rosemary or fodder plant both rotated and permanent and fruits such as apples, pears, apricots, cherries, peaches, kiwi or plums (all claimed).

ADVANTAGE - The composition reduces the amount of nitrates and

glycoalkaloids contained in the vegetable. The composition preserves human or animal health in a better way and/or reduces the anti-nutritional factors for human being and/or animals. The method of administration is cheaper and less dangerous for the environment. The composition has a simple and economic realization and is easy to use.

Technology Focus

INORGANIC CHEMISTRY - Preferred Composition: The composition further comprises iodine salts (c) (0.005 mg - 20 g), zinc salts (d) (0.005 mg - 20 g) and molybdenum salts (e) (0.005 mg - 20 g).

Preferred Components: (a) comprise selenite and selenate of sodium, potassium, calcium, magnesium, barium, copper, ammonium or zinc. (b) is metavanadate and vanadate of sodium, potassium or ammonium. (c) is iodide and iodate of sodium, potassium, calcium, magnesium, barium, copper or ammonium. (d) is zinc sulfate, acetate, chloride, perchlorate, nitrate, stearate, sulfide or oxide. (e) is molybdate of ammonium, sodium or potassium. The water is distilled, deionized or drinking.

ORGANIC CHEMISTRY - Preferred Composition: The composition further includes organic solvents (0.005 - 25 %), component (f) suitable to bond the ions of (a) and (b), surface-active agents (0.001 - 0.30 %) to reduce interface tension between the sprayed vegetable portion and the sprayed composition, chelating agent (0.05 mg - 50 g) to make the elements available to the plants for a longer time and amino acids.

Preferred Components: The organic solvents is singularly or mixed dimethylsulfoxide, glycols of the type ethylenic, polyethylenic, hesilenic, butyl, 1-2 propylenglycols, ethers of glycols and polyglycols with methyl, ethylic, propylic, butyl alcohol and other glycols up to a molecular weight of 20,000 polyglycols and polyoxyethylenglycols up to a molecular weight of 20,000. (f) has functional group such as hydroxyl, carboxyl, carbonyl, amines, sulfidryl or phenols. The surface-actives are anionics (alkyl benzene sulfonate), cationics (alkyl ammonium salts), not ionic (**TRITON** , **TWEEN** , sucroesters, polyoxyethylenglycols, polyoxyethylenethers, alkyl aryl esters and alkyl phenol ethoxylates). The chelating agents are singularly or mixed **humic** substances, ethylenediaminetetracetic acid (**EDTA**) and its salts, ethylene diamine dihydroxyphenylacetic acid (**EDDHA**) and its salts, citric acid, oxalic acid, succinic acid, **gluconic acid**, glyoxylic acid or **tartaric acid**. The amino acids are pure or hydrolysates of proteins or scleroproteins. The amino acids, polyamino acids and polyamines (0.005 mg - 20 g) bond the contained element in the composition and help the transport of the element inside the vegetable tissue.

POLYMERS - Preferred Composition: The composition further comprises biopolymer (0.001 - 0.50 %) to regulate the viscosity of the composition and favor its checked and gradual release.

Preferred Components: The biopolymers include singularly or mixed alginates, ethers of cellulose, carboxymethyl cellulose, carrageenan, agar, xanthans, lignin and the by-products of lignin, pectic acids, **humic** acids or **fulvic acids**. The polyvinyl alcohol is 0.01 - 2 wt/vol.%.

AGRICULTURE - Preferred Method: The composition is sprayed at 4 - 40(deg)C as little drops (diameter less than 1 mm, preferably 0.05 mm) on the hypogeous or epigeal apparatus of the vegetable (preferably leaf, roots, fruits, tubers, bulbs or other parts of the vegetable). The droplets comprises selenium (2 - 200 g), iodine (up to 1 kg) and/or vanadium (up to 600 g), molybdenum (up to 1 kg) and zinc (up to 5 kg) for a hectare. The roots or other parts of the plant are dipped in the composition having a concentration (g/L) selenium (10), iodine (20) and/or vanadium (3), molybdenum (20) and zinc (20). The composition is sprayed at 5 - 9 pH. The spraying of the vegetable is repeated during their vegetative cycle. The composition is sprinkled directly on the vegetable products after their harvest.

Extension Abstract

EXAMPLE - Tomato seedlings were cultivated in hydroponic solutions containing selenium (0.05 mg) and iodine (0.5, 5 or 50 mg). After 4 weeks the plants were subjected to a classical manuring. The tomatoes obtained had a higher content of selenium (2 times higher) and iodine (1, 5, 4 and 6 times higher) than those obtained without the addition of these salts.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05D-0009/02	A	I		R	20060101
C05D-0009/00	C	I		R	20060101

ECLA: C05D-009/02+C05F11/00+G3/06

Technology Focus ...The chelating agents are singularly or mixed **humic** substances, ethylenediaminetetracetic acid (**EDTA**) and its salts, ethylene diamine dihydroxyphenylacetic acid (**EDDHA**) and its salts, citric acid, oxalic acid, succinic acid, gluconic acid, glyoxylic acid or tartaric acid. The amino acids are pure or hydrolysates of proteins or scleroproteins. The amino acids, polyamino acids... cellulose, carboxymethyl cellulose, carrageenan, agar, xanthans, lignin and the by-products of lignin, pectic acids, **humic** acids or fulvic acids. The polyvinyl alcohol is 0.01 - 2 wt/vol... **Extension Abstract** Original Publication Data by AuthorityArgentinaPublication No. ...Original **Abstracts:** active agents, biopolymers, chelating agents and amino acids, polyvinyl alcohol in association or not with **fertilizers.** >

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41/34,K/15 (Item 15 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0008309396

WPI Acc no: 1997-420508/199739

Fixed preparation of microorganisms used as compost accelerator - comprises e.g. actinomycetes fixed on shellfish carrier

Patent Assignee: SOLAR JAPAN KK (SOLA-N)

Inventor: MOCHIDA K

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 9188585	A	19970722	JP 1995353585	A	19951229	199739	B

Priority Applications (no., kind, date): JP 1995353585 A 19951229

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
JP 9188585	A	JA	5	0	

Alerting Abstract JP A

A fixed preparation of microorganisms uses **fossilised** shellfish as a carrier for the microorganisms. Also claimed are an organic **fertilizer**, organic material for agriculture, organic matter-rot/ripening accelerator, and soil conditioner that use the fixed preparation of microorganisms.

The fixed preparation of microorganisms is prepared by mixing **fossilised** shellfish containing **humic acid** at 100 mg or more/kg dry shellfish in fermented compost containing microorganisms: bacteria, actinomycetes and/or moulds. The carriers for microorganisms include **fossil** mineral mainly composed of silicic acid, Al, Ca and/or Mg, or clay mineral, porous substances and/or **humic acid**. Microorganisms-containing fermented compost and the carriers can be mixed at any desired ratio, but at a preferred carrier/compost ratio of 3-30%, optionally 10%. The preparation may be prepared as powder or granule using binders. The microorganisms should be contained in the order of 10⁵-10⁸/g.

USE - This invention is useful in agriculture.

ADVANTAGE - The addition of this preparation to organic matter accelerates composting. Spraying this preparation on the soil activates soil microorganisms, enhancing the absorption efficiency for chemical **fertilizers** and improving the resistance to soil disease microbes. The use of **fossilised** shellfish-carried microorganisms on rice paddy exerts beneficial effects on the rice plant, e.g., strengthening leaves and stems, improving ripening, preventing lodging etc.

Class Codes

International Patent Classification

Utilization of residues from coal power plants in the nature

IPC	Class Level	Scope	Position	Status	Version Date
C05F-0011/08	A	I		R	20060101
C05F-0017/00	A	I	L	R	20060101
C09K-0017/42	A	I	L	R	20060101
C09K-0017/50	A	I	L	R	20060101
C12N-0011/14	A	I	F	R	20060101
C05F-0011/00	C	I		R	20060101
C05F-0017/00	C	I	L	R	20060101
C09K-0017/40	C	I	L	R	20060101
C12N-0011/00	C	I	F	R	20060101

ECLA: C05F-011/08

Alerting Abstract ...A fixed preparation of microorganisms uses **fossilised** shellfish as a carrier for the microorganisms. Also claimed are an organic **fertilizer**, organic material for agriculture, organic matter-rot/ripening accelerator, and soil conditioner that use the...
 ...The fixed preparation of microorganisms is prepared by mixing **fossilised** shellfish containing **humic acid** at 100 mg or more/kg dry shellfish in fermented compost containing microorganisms: bacteria, actinomycetes and/or moulds. The carriers for microorganisms include **fossil** mineral mainly composed of silicic acid, Al, Ca and/or Mg, or clay mineral, porous substances and/or **humic acid**. Microorganisms-containing fermented compost and the carriers can be mixed at any desired ratio, but...
 ...Spraying this preparation on the soil activates soil microorganisms, enhancing the absorption efficiency for chemical **fertilizers** and improving the resistance to soil disease microbes. The use of **fossilised** shellfish-carried microorganisms on rice paddy exerts beneficial effects on the rice plant, e.g...

Dialog eLink: Order File History

41/34,K/16 (Item 16 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0008266538

WPI Acc no: 1997-374900/199735

Production of sulphaalkylated humic acid concentrates, useful in acid fertilizers - involves mixing humic acid containing ore with aldehyde and sulphonating agent, adjusting pH to alkaline for reaction and separating concentrates

Patent Assignee: LIGNOTECH USA INC (LIGN-N)

Inventor: BOSHAR L L; BUSHAR L L; DETROIT W J; LEBO S E

Patent Family (11 patents, 11 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 786490	A2	19970730	EP 1997100876	A	19970121	199735	B
US 5663425	A	19970902	US 1996592270	A	19960126	199741	E
JP 9216892	A	19970819	JP 199724557	A	19970124	199743	E
CA 2195338	A	19970727	CA 2195338	A	19970116	199749	E
MX 199700507	A1	19970701	MX 1997507	A	19970120	199827	E
KR 1997059264	A	19970812	KR 19972170	A	19970125	199837	E
MX 198525	B	20000908	MX 1997507	A	19970120	200211	E
TW 454024	A	20010911	TW 1997100224	A	19970110	200242	E
CA 2195338	C	20041130	CA 2195338	A	19970116	200480	E
KR 458404	B	20050115	KR 19972170	A	19970125	200535	E
JP 3790315	B2	20060628	JP 199724557	A	19970124	200646	E

Priority Applications (no., kind, date): US 1996592270 A 19960126
Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes	
EP 786490	A2	EN	6	0		
Regional Designated States, Original	DE ES FR GB NL					
US 5663425	A	EN	4	0		
JP 9216892	A	JA	6	0		
CA 2195338	A	EN				
TW 454024	A	ZH				
CA 2195338	C	EN				
KR 458404	B	KO			Previously issued patent	KR 97059264
JP 3790315	B2	JA	9		Previously issued patent	JP 09216892

Alerting Abstract EP A2

A method for the production of sulphaalkylated **humic acid** concentrates comprises: (a) mixing a **humic acid** containing ore with an aldehyde and a sulphonating agent to form a slurry; (b) adjusting the pH of the slurry to pH 9-12 to form a reaction mixture; (c) reacting the pH-adjusted reaction mixture under temperature and pressure and for time sufficient to produce the concentrate; and (d) separating the sulphaalkylated **humic acid** concentrates from the reaction mixture.

USE - The method is useful for the production of sulphaalkylated **humic acid** concentrates from **humic acid** containing ore, useful in **acid fertilizers**.

ADVANTAGE - The process is rapid and easy and the concentrates have good solubility and can be isolated as liquid concentrates or as dried powders.

Save-2009-06-19_130357

Documentation Abstract

A method for the production of sulphoalkylated **humic acid** concentrates comprises:

- (a) mixing a **humic acid** containing ore with an aldehyde and a sulphonating agent to form a slurry;
- (b) adjusting the pH of the slurry to pH 9-12 to form a reaction mixture;
- (c) reacting the pH-adjusted reaction mixture under temperature and pressure and for time sufficient to produce the concentrate; and
- (d) separating the sulphoalkylated **humic acid** concentrates from the reaction mixture.

USE - The method is useful for the production of sulphoalkylated **humic acid** concentrates from **humic acid** containing ore, useful in **acid fertilizers**.

ADVANTAGE - The process is rapid and easy and the concentrates have good solubility and can be isolated as liquid concentrates or as dried powders.

PREFERRED PROCESS - The ore is lignite, brown coal and/or peat, or is **leonardite**. The sulphonating agent is sodium bisulphite, potassium bisulphite, ammonium bisulphite, sodium metabisulphite, potassium metabisulphite and/or ammonium bisulphite.

The slurry contains 15 wt. % or more aldehyde and 30 wt. % or more sulphonating agent.

(b) involves adding an alkali to the slurry, which is sodium hydroxide, potassium hydroxide, ammonium hydroxide, lithium hydroxide, sodium carbonate, potassium carbonate and/or lithium carbonate.

The reaction temperature is 100-210 (deg)C and the time is 0.5-5 hours. The pH is adjusted to 10-11. The process further includes forming the concentrates into a powder form.

The aldehyde is formaldehyde, acetaldehyde, propionaldehyde and/or butyl aldehyde.

EXAMPLE - Sulphoalkylated **humic acid** concentrates formed with 33 wt. % sodium bisulphite gave 1 wt. % insolubles in **acid fertilizer** at pH 1.5 compared with 15 wt. % with no sulphoalkylation. (SA)

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date			
C07G-001/00; C08H-005/00; C10L-001/32			Main		"Version 7"			
C07G-0017/00	A	I	F	B	20060101			
C07G-0017/00	A	I	F	R	20060101			
C08H-0005/00	A	I		R	20060101			
C07G-0017/00	C	I	F	R	20060101			
C08H-0005/00	C	I		R	20060101			

ECLA: C08H-005/00

US Classification, Current Main: 562-032000

US Classification, Issued: 56232

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C07G-017/00 B			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4H055		
4H055	AA02	
4H055	AC12	
4H055	BA10	

Production of sulphoalkylated humic acid concentrates, useful in acid fertilizers - ... involves mixing humic acid containing ore with aldehyde and sulphonating agent, adjusting pH to alkaline for reaction and separating ... Original Titles: Production of acid soluble humates... Production d'humates soluble en milieu acide ... Production of acid soluble humates. Alerting Abstract ... A method for the production of sulphoalkylated humic acid concentrates comprises: (a) mixing a humic acid containing ore with an aldehyde and a sulphonating agent to form a slurry; (b) adjusting ... and pressure and for time sufficient to produce the concentrate; and (d) separating the sulphoalkylated humic acid concentrates from the reaction mixture... USE - The method is useful for the production of sulphoalkylated humic acid concentrates from humic acid containing ore, useful in acid fertilizers. Documentation Abstract A method for the production of sulphoalkylated humic acid concentrates comprises... a) mixing a humic acid containing ore with an aldehyde and a sulphonating agent to form a slurry... d) separating the sulphoalkylated humic acid concentrates from the reaction mixture... USE - The method is useful for the production of sulphoalkylated humic acid concentrates from humic acid containing ore, useful in acid fertilizers. ... PREFERRED PROCESS - The ore is lignite, brown coal and/or peat, or is leonardite. The sulphonating agent is sodium bisulphite, potassium bisulphite, ammonium bisulphite, sodium metabisulphite, potassium metabisulphite and... EXAMPLE - Sulphoalkylated humic acid concentrates formed with 33 wt. % sodium bisulphite gave 1 wt. % insolubles in acid fertilizer at pH 1.5 compared with 15 wt. % with no sulphoalkylation. (SA) Documentation Abstract Image Title Terms .../Index Terms/Additional Words: HUMIC; ... ACID; ... FERTILISER; Class Codes Original Publication Data by

AuthorityArgentinaPublication No. Original Abstracts:A method is disclosed for production of acid soluble humates. Humic acid bearing ores are sulfoalkylated under alkaline conditions to produce high solids humic acid concentrates which are soluble at pH as low as 0.5 and in yields of at least 70 percent... A method is disclosed for production of acid soluble humates. Humic acid bearing ores are sulfoalkylated under alkaline conditions to produce high solids humic acid concentrates which are soluble at pH as low as 0.5 and in yields of at least 70 percent. Claims:1. A method for producing sulfoalkylated humic acid concentrates, comprising the steps of:

- (a) mixing a humic acid containing ore with an aldehyde and a sulfonating agent to form a slurry;
- (b) adjusting the pH of said... mixture under conditions of temperature and pressure and for sufficient time to produce a sulfoalkylated humic acid concentrate; and
- (d) separating the sulfoalkylated humic acid concentrate from the reaction mixture. ... A method for producing sulfoalkylated humic acid concentrates, comprising the steps of:(a) mixing a humic acid containing ore with an aldehyde and a sulfonating agent to form a slurry;(b) adjusting the pH of said slurry to pH 9-12 to form a reaction mixture;(c) reacting... mixture under conditions of temperature and pressure and for sufficient time to produce a sulfoalkylated humic acid concentrate, said sulfoalkylated humic acid concentrate having a sulfonic sulfur content greater than about 5% and having a precipitation pH below pH 0.5; and(d) separating the sulfoalkylated humic acid concentrate from the reaction mixture.

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41/34,K/17 (Item 17 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0007277879

WPI Acc no: 1995-336171/199543

Prepn. of compsn. for stimulating plant growth - by mixing water and fly ash, mixing activated humic acid bearing ore with e.g. potassium hydroxide, and combining mixts.

Patent Assignee: TROWBRIDGE R (TROW-I)

Inventor: TROWBRIDGE R

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 5451240	A	19950919	US 1991793832	A	19911119	199543	B

Priority Applications (no., kind, date): US 1991793832 A 19911119

Save-2009-06-19_130357

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
US 5451240	A	EN	7	0	

Alerting Abstract US A

Prepn. of a compsn. for stimulating plant growth, comprises: (a) mixing water and fly ash, to hydrate the fly ash; (b) separately mixing (i) potassium hydroxide, potassium nitrate and/or aq. ammonia with (ii) a **humic acid**-bearing ore, to activate the **humic acids** while in the ore; and (c) combining the activated **humic acid** bearing ore with the hydrated fly ash. Also claimed is the prepn. of **fertilisers**, which comprises: (a) mixing water and fly ash to hydrate the fly ash; (b) separately adding potassium hydroxide to a **humic acid**-bearing ore, in order to activate the **humic acids** while contained in the ore; (c) mixing the hydrated fly ash and the activated **humic acid** bearing ore; (d) spraying a mixt. of potassium hydroxide and aq. ammonia on the dry mix, to initiate fusing of the mixt. and to further activate the **humic acids** in the ore; (e) adding lignin to the mixt. to help bind the mixt. together; and (f) prilling the mixt.

The **humic acid**-bearing ore is pref. **leonardite** ore, peats, peat moss, lignite, humates or brown coal. The fly ash is derived from high-sulphur-content coal. The hydrated fly ash constitutes 30-70% of the hydrated fly ash/activated ore mixt.

USE - The prods. may be used as soil conditioners and **fertilisers**.

ADVANTAGE - The processes do not require extn. of the **humic acids** from the ore. The prods. contain desired nutrient elements in a form which is readily usable by the plants.

Documentation Abstract

Prepn. of a compsn. for stimulating plant growth, comprises:

- (a) mixing water and fly ash, to hydrate the fly ash;
- (b) separately mixing (i) potassium hydroxide, potassium nitrate and/or aq. ammonia with (ii) a **humic acid**-bearing ore, to activate the **humic acids** while in the ore; and
- (c) combining the activated **humic acid** bearing ore with the hydrated fly ash.

Also claimed is the prepn. of **fertilisers**, which comprises:

- (a) mixing water and fly ash to hydrate the fly ash;
- (b) separately adding potassium hydroxide to a **humic acid** -bearing ore, in order to activate the **humic acids** while contained in the ore;
- (c) mixing the hydrated fly ash and the activated **humic acid** bearing ore;
- (d) spraying a mixt. of potassium hydroxide and aq. ammonia on the dry mix, to initiate fusing of the mixt. and to further activate the **humic acids** in the ore;
- (e) adding lignin to the mixt. to help bind the mixt. together; and
- (f) prilling the mixt.

USE - The prods. may be used as soil conditioners and **fertilisers**.

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the ore. The prods. contain desired nutrient elements in a form which is readily usable by the plants.

PREFERRED PROCESS - The **humic acid**-bearing ore is **leonardite** ore, peats, peat moss, lignite, humates or brown coal. The fly ash is derived from high-sulphur-content coal. The hydrated fly ash constitutes 30-70% of the hydrated fly ash/activated ore mixt.

EXAMPLE - Fly ash (900 lbs) was placed in a large mixer. The particle size of the ash is defined as that which can pass through a U.S. standard 100 mesh screen. Approx 45 lbs of water was added to the ash. The mixt. was stirred for 30 mins., then transferred to a holding unit and allowed to stand for 24 hrs.

Leonardite ore (900 lbs) which had an extractable **humic acid** content as high as 90%, was crushed in a high speed grinder, until the particles are of the size which can pass through a U.S. Standard 200 mesh screen. The ore was then placed in a large (5 ton) mixer and treated with 90 lbs 37% KOH soln. The mixt. was stirred for 30 mins. and then passed through an air dryer to remove excess moisture.

The activated **leonardite** ore and the hydrated fly ash were combined in a large paddle mixer and mixed thoroughly. The dry mixt. was fed into a prilling machine, and treated with a soln. comprising 90 lbs. 37% KOH soln., 40 lbs 30% aq. ammonia soln. and 20 lbs aq. suspension comprising 4 lbs of lignin.

Three sizes of pill were produced (1/4, 1/8 and 1/16 inch). The prod. released its nutrients over 60 days. (TF)

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05D-0009/00	A	I		R	20060101
C05F-0011/02	A	I		R	20060101
C05D-0009/00	C	I		R	20060101
C05F-0011/00	C	I		R	20060101

ECLA: C05D-009/00+F11/02, C05F-011/02

US Classification, Issued: 7124, 71903

...by mixing water and fly ash, mixing activated humic acid bearing ore with e.g. potassium hydroxide, and combining mixts. Alerting Abstract ...b) separately mixing (i) potassium hydroxide, potassium nitrate and/or aq. ammonia with (ii) a **humic acid**-bearing ore, to activate the **humic acids** while in the ore; and (c) combining the activated **humic acid** bearing ore with the hydrated fly ash. Also claimed is the prepn. of **fertilisers**, which comprises: (a) mixing water and fly ash to hydrate the fly ash; (b) separately adding potassium hydroxide to a **humic acid**-bearing ore, in order to activate the **humic acids** while contained in the ore; (c) mixing the hydrated fly ash and the activated **humic acid** bearing ore; (d) spraying a mixt. of potassium hydroxide and aq. ammonia

on the dry mix, to initiate fusing of the mixt. and to further activate the **humic acids** in the ore; (e) adding lignin to the mixt. to help bind the mixt. together... .The **humic acid**-bearing ore is pref.**leonardite** ore, peats, peat moss, lignite, humates or brown coal. The fly ash is derived from high-sulphur-content coal. The hydrated fly ash constitutes 30-70% of the hydrated fly ash/activated ore mixt... .USE - The prods. may be used as soil conditioners and **fertilisers**ADVANTAGE - The processes do not require extn. of the **humic acids** from the ore. The prods. contain desired nutrient elements in a form which is readily

Documentation Abstract ...b) separately mixing (i) potassium hydroxide, potassium nitrate and/or aq. ammonia with (ii) a **humic acid**-bearing ore, to activate the **humic acids** while in the ore; and... .c) combining the activated **humic acid** bearing ore with the hydrated fly ash... .Also claimed is the prepn. of **fertilisers**, which comprises... .b) separately adding potassium hydroxide to a **humic acid** -bearing ore, in order to activate the **humic acids** while contained in the ore... .c) mixing the hydrated fly ash and the activated **humic acid** bearing ore... .on the dry mix, to initiate fusing of the mixt. and to further activate the **humic acids** in the ore... .USE - The prods. may be used as soil conditioners and **fertilisers**ADVANTAGE - The processes do not require extn. of the **humic acids** from the ore. The prods. contain desired nutrient elements in a form which is readily... .PREFERRED PROCESS - The **humic acid**-bearing ore is **leonardite** ore, peats, peat moss, lignite, humates or brown coal. The fly ash is derived from high-sulphur-content coal. The hydrated fly ash constitutes 30-70% of the hydrated fly ash/activated ore mixt... .**Leonardite** ore (900 lbs) which had an extractable **humic acid** content as high as 90%, was crushed in a high speed grinder, until the particles... .The activated **leonardite** ore and the hydrated fly ash were combined in a large paddle mixer and mixed

Documentation Abstract Image Title Terms .../Index Terms/Additional Words: **HUMIC**;**ACID**; **Class Codes** Original Publication Data by AuthorityArgentinaPublication No. **Original Abstracts**:A process for the preparation of compositions for stimulating plant growth whereby coal ash is fused with a **humic acid**-bearing ore, and more particularly fusing fly ash with **leonardite** ore; compositions produced by such a process; and methods for use thereof for stimulating plant growth. ...**Claims**:member of the group consisting of potassium hydroxide, potassium nitrate and aqueous ammonia with a **humic acid** bearing ore to activate the **humic acids** while in the ore; (c) combining the activated **humic acid**-bearing ore with the hydrated fly ash.

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41/34, K/18 (Item 18 from file: 350)

DIALOG(R) File 350: Derwent WPIX

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0007076326

WPI Acc no: 1995-100778/199514

Chemical pretreatment of fossil materials with dil. acids - for removal of heavy metals and augmentation of humic acid concn. and associated bio-activity

Patent Assignee: GERSE J (GERS-I)

Inventor: CSICSOR J; GERSE J; GRONIEWSKY T; KRANCZ A

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
HU 67185	T	19950228	HU 19921498	A	19920505	199514	B

Priority Applications (no., kind, date): HU 19921498 A 19920505

Alerting Abstract HU T

Fossil materials of 0-25 mm. size are treated with aq. dil. acid (1-12%) in a wt. ratio of 1:3-13. The acid soln. is neutralised prior to being recirculated in the system. Phases are sepd. by sedimentation, vacuum- or centrifugal filtration.

USE - The prod. is used for prepn. of **humic acids** or mixed with **fertiliser** (NPC) for introduction of a bioactive component in the soil.

ADVANTAGE - Dead-wt. of humus contg. **fossil** materials is reduced for elimination of toxic, heavy metals and for an increase in the **humic acid** concn. and associated biological activity.

Documentation Abstract

Fossil materials of 0-25 mm. size are treated with aq. dil. acid (1-12%) in a wt. ratio of 1:3-13. The acid soln. is neutralised prior to being recirculated in the system. Phases are sepd. by sedimentation, vacuum- or centrifugal filtration.

USE - The prod. is used for prepn. of **humic acids** or mixed with **fertiliser** (NPC) for introduction of a bioactive component in the soil.

ADVANTAGE - Dead-wt. of humus contg. **fossil** materials is reduced for elimination of toxic, heavy metals and for an increase in the **humic acid** concn. and associated biological activity. (SCG) (1765)

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version	Date
C05F-0011/02	A	I		R	20060101	
C05F-0011/00	C	I		R	20060101	

Chemical pretreatment of fossil materials with dil. acids -for removal of heavy metals and augmentation of humic acid concn. and associated bio-activity Alerting Abstract ... **Fossil** materials of 0-25 mm. size are treated with aq. dil. acid (1-12%) in a wt. ratio of 1:3-13. The acid soln. is neutralised prior to being recirculated in the system.

Phases are sepd. by sedimentation... ..USE - The prod. is used for prepn. of **humic acids** or mixed with **fertiliser** (NPC) for introduction of a bioactive component in the soil... ..ADVANTAGE - Dead-wt. of humus contg. **fossil** materials is reduced for elimination of toxic, heavy metals and for an increase in the **humic acid** concn. and associated biological activity. **Documentation Abstract Fossil** materials of 0-25 mm. size are treated with aq. dil. **acid** (1-12%) in a wt. ratio of 1:3-13. The **acid** soln. is neutralised prior to being recirculated in the system. Phases are sepd. by sedimentation... ..USE - The prod. is used for prepn. of **humic acids** or mixed with **fertiliser** (NPC) for introduction of a bioactive component in the soil... ..ADVANTAGE - Dead-wt. of humus contg. **fossil** materials is reduced for elimination of toxic, heavy metals and for an increase in the **humic acid** concn. and associated biological activity. (SCG) (1765) **Documentation Abstract Image Title Terms** .../Index Terms/Additional Words: **FOSSIL**;**ACID**;**HUMIC**; **Class Codes**

Dialog eLink: Order File History

41/34,K/19 (Item 19 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0006479535

WPI Acc no: 1993-285275/199336

Powder carbon comprises carbonised vegetable residue e.g. sake lees - is used for soil improvement and water purifcn. of golf courses, and neutralises and adsorbs acid rain

Patent Assignee: YAMAMURA T (YAMA-I)

Inventor: YAMAMURA T

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 5201714	A	19930810	JP 199237268	A	19920127	199336	B

Priority Applications (no., kind, date): JP 199237268 A 19920127

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
JP 5201714	A	JA	3	0	

Alerting Abstract JP A

The powder carbon comprises carbonising vegetable residue.

USE/ADVANTAGE - The powder carbon is used for fuel, **soil sterilisation**, **soil** improvement, water purifn. feed, **fertiliser**, etc.. Vegetable residue such as sake lees, bean jam lees, coffee lees, apple and other vegetable

corn or fruit residue is carbonised and used as powder carbon. And environmental pollution by illegal abandonment can be prevented. The powdered carbon has high economical value. e.g., it can be used for soil improvement material of a golf course; for purifn. by adsorbing agrochemicals of a golf course or can neutralise and absorb acid rain. USE/ADVANTAGE - In an example, Vegetable residue was carbonised by a continuous carbonisation appts.. And its component was compared with powder carbon using sawdust and mushroom culture medium (70% wood shavings). Sawdust; (1) water content; 5.22% (2) ash content; 1.47%, (3) volatile content; 40.30%, (4) fixed carbon; 53.01%, (5) heating value; 6.349 cal/g. Mushroom culture medium; (1) 8.80%, (2) 5.58%, (3) 28.30%, (4) 57.32%, (5) 5.628 cal/g. Sake lees; (1) 4.94%, (2) 3.36%, (3) 32.52%, (4) 59.18%, (5) 6.389 cal/g. Apple druff; (1) 3.16%, (2) 5.54%, (3) 23.11%, (4) 68.19%, (5) 7.159 cal/

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C01B-0031/02	A	I	F	R	20060101
C01B-0031/00	C	I	F	R	20060101

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C01B-031/02 101 Z			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4G046		
4G146		
4G146	AA01	
4G146	AB01	
4G146	AC27	B
4G146	BA34	
4G146	BC03	
4G046	CA00	
4G046	CB02	
4G046	CC01	

...is used for soil improvement and water purifcn. of golf courses, and

Save-2009-06-19_130357

neutralises and adsorbs acid rain Original Titles: FINE COAL Alerting
 Abstract ...USE/ADVANTAGE - The powder carbon is used for fuel, soil
 sterilisation, soil improvement, water purifn. feed, fertiliser, etc..
 Vegetable residue such as sake lees, bean jam lees, coffee lees, apple
 and other... ..course; for purifn. by adsorbing agrochemicals of a golf
 course or can neutralise and absorb acid rain... Title Terms .../Index
 Terms/Additional Words: ACID; Class Codes

Dialog eLink: Order File History

41/34,K/20 (Item 20 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0005545516

WPI Acc no: 1991-150067/199121

Continuous prodn. of organic fertiliser from waste by rapid process -
 comprises acidifying waste to cause breakdown while retaining humic acid

Patent Assignee: RELAND IND INC (RELA-N)

Inventor: ROBINSON E C

Patent Family (8 patents, 17 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
EP 428015	A	19910522	EP 1990120922	A	19901031	199121	B
CA 2025031	A	19910507				199129	E
JP 3170388	A	19910723	JP 1990260277	A	19900928	199135	E
ZA 199007718	A	19910731	ZA 19907718	A	19900927	199136	E
EP 428015	B1	19950118	EP 1990120922	A	19901031	199507	E
DE 69016172	E	19950302	DE 69016172	A	19901031	199514	E
			EP 1990120922	A	19901031		
US 5393317	A	19950228	US 1989432565	A	19891106	199514	E
			US 1991750769	A	19910822		
ES 2069651	T3	19950516	EP 1990120922	A	19901031	199526	E

Priority Applications (no., kind, date): US 1989432565 A 19891106; US
 1991750769 A 19910822

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
EP 428015	A	EN			
Regional Designated States,Original	AT BE CH DE ES FR GB GR IT LI LU NL SE				

CA 2025031	A	EN			
ZA 199007718	A	EN			
EP 428015	B1	EN	9	2	
Regional Designated States, Original	AT BE CH DE DK ES FR GB GR IT LI LU NL SE				
DE 69016172	E	DE			Application
					Based on OPI patent
US 5393317	A	EN	7		Continuation of application
ES 2069651	T3	ES			Application
					Based on OPI patent

Alerting Abstract EP A

Prodn. of an organic based **fertiliser** contg. a predetermd. amt. of available inorganic material from the gp. N, P, K, S, Ca, trace materials and mixts comprises: (a) mixing an inorganic cpd., to provide the amt. of inorganic material in the **fertiliser** prod., with an organic material; (b) blending in **acid** to reduce the pH and cause chemical breakdown of the mixt.; (c) allowing the blended mixt. to cure for a time to break down the organic material; (d) blending in base to raise the pH; and (e) blending in additional base to raise the pH to that desired for the finished prod..

Also claimed is the apparatus for the prodn..

Stages (b) and onwards are at atmos. pressure. The amt. of organic material is at least 30% dry solids based on total wt. of prod.. Prior to step (a), there may be preconditioning to a particle size satisfactory for acid penetration. In step (a) there is opt. watering or dewatering to a moisture content 15-25%. In (b) the pH is reduced to 0.5. After the cure (c), the temp. is 1000-250 deg.F. prior to (d). Opt. after step (d), there is cooling and aeration of the mixt. by exposure to an oxygen contg. gas. After step (d) the pH is 2-4, in the final prod. 4-8.

USE/ADVANTAGE - The process provides an organic based **humic acid fertiliser** in a relatively short period of time compared to the natural process. The **fertiliser** releases balanced nutrients slowly, which cannot be achieved with common chemically produced **fertilisers**. @9pp

Dwg . No . 0 / 2)

Equivalent Alerting Abstract US A

Prodn. of an organic-based **humic acid fertiliser** contg. a predetermined amt. of an inorganic material (I) chosen from N, K, phosphate and/or potash and with a desired final pH comprises blending (I) with an organic material (II) chosen from livestock and poultry manure, sewage sludge, separated garbage, cotton gin trash, fruit, vegetable or nut cannery waste, wood or paper pulp waste, spent mushroom compost, methane and alcohol solid wastes, lignite, **leonardite**, humate, **coal** or mixts. of these.

The mixt. is then blended with enough **acid** to substantially reduce its pH and cause chemical breakdown of (II). The mixt. is then allowed to stand

for at least 20 mins. The prod. is then blended with sufficient base to raise its pH to an intermediate level between the initial and desired pH, after which the prod. is blended with additional base to produce the desired final pH.

ADVANTAGE - The **fertiliser** is produced in a relatively short time and a balanced, slow release of nutrients is obtd. from it.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05G-001/00			Main		"Version 7"
C05F-0011/00	A	I	F	R	20060101
C05F-0003/00	A	I		R	20060101
C05F-0009/00	A	I		R	20060101
C05G-0001/00	A	I		R	20060101
C05F-0011/00	C	I	F	R	20060101
C05F-0003/00	C	I		R	20060101
C05F-0009/00	C	I		R	20060101
C05G-0001/00	C	I		R	20060101

ECLA: C05F-003/00+F5/00+F7/00, C05F-009/00+F9/02+F11/00, C05G-001/00
US Classification, Issued: 7112, 7113, 7115, 7121, 7123, 7124, 7125, 71901

Continuous prodn. of organic fertiliser from waste by rapid process ...
...comprises acidifying waste to cause breakdown while retaining humic acid ...Original Titles:Method and apparatus for producing organic based **fertilizer** in continuous process... **...Method and apparatus for producing organic based fertilizer in continuous process... ...Method and apparatus for producing organic based fertilizer in continuous process**
Alerting Abstract ...Prodn. of an organic based fertiliser contg. a predetermd. amt. of available inorganic material from the gp. N, P, K, S...
...comprises: (a) mixing an inorganic cpd., to provide the amt. of inorganic material in the **fertiliser** prod., with an organic material; (b) blending in **acid** to reduce the pH and cause chemical breakdown of the mixt.; (c) allowing the blended... **...prod.. Prior to step (a), there may be preconditioning to a particle size satisfactory for acid penetration. In step (a) there is opt. watering or dewatering to a moisture conent 15... ...USE/ADVANTAGE - The process provides an organic based humic acid fertiliser in a relatively short period of time compared to the natural process. The fertiliser releases balanced nutrients slowly, which cannot be achieved with common chemically produced fertilisers. @ (9pp Dwg.No.0/2)**
Equivalent Alerting Abstract ...Prodn. of an organic-based humic acid fertiliser contg. a predetermined amt. of an inorganic material (I) chosen from N, K, phosphate and... ...waste, wood or paper

pulp waste, spent mushroom compost, methane and alcohol solid wastes, lignite, leonardite, humate, coal or mixts. of these... The mixt. is then blended with enough acid to substantially reduce its pH and cause chemical breakdown of (II). The mixt. is then... ADVANTAGE - The **fertiliser** is produced in a relatively short time and a balanced, slow release of nutrients is... **Technology Focus Title Terms** .../Index
 Terms/Additional Words: **FERTILISER**; ... **ACIDIC**; ... **HUMIC**; ...
 ...**ACID Class Codes** Original Publication Data by
 AuthorityArgentinaPublication No. Original Abstracts: A method and apparatus for making organic based **fertilizer**, the method including mixing organic material (12) with phosphate, (14) potash (16) or other inorganics (16) and water if necessary. **Acid** (26) is mixed (20) with the organic and inorganic material mixture and the resulting mixture is permitted to cure for a sufficient period of time (31) to allow the **acid** to chemically break down the material of the mixture. A first quantity of ammonia (46) is then added to... a second quantity of ammonia (56) is added to the mixture to produce the finished **fertilizer** product. Quantities of the various ingredients are adjusted to provide a **fertilizer** that has a desired percentage make-up of the major **fertilizer** elements for a specific crop... A method and apparatus for making organic based **fertilizer**, the method including mixing organic material with phosphate, **potash**, or other inorganics and water if necessary. **Acid** is mixed with the organic and inorganic material **mixture** and the resulting mixture is permitted to cure for a sufficient period of time to allow the **acid** to chemically break down the material of the **mixture**. A first quantity of ammonia is then added to the mixture, and a second quantity of ammonia is added to the mixture to produce the finished **fertilizer** product. Quantities of the various ingredients are adjusted to provide a **fertilizer** that has a desired percentage make-up of the major **fertilizer** elements for a specific crop. **Claims:** 1. A method for producing an organic based **fertilizer** containing a predetermined amount of an available inorganic material selected from the group consisting of nitrogen, phosphate... of an inorganic compound to provide said predetermined amount of said inorganic material in the **fertilizer** product, the **mixture** having a moisture content of at least about 12% to about 40% by weight based... weight of the organics material; (b) blending with the mixture a sufficient amount of an **acid** to obtain a reduction in pH of the mixture and to cause chemical breakdown of the mixture; (c) allowing... the pH level of the resulting mixture to a predetermined level desired for the finished **fertilizer** product. ...
 1. A method for producing an organic based **humic acid fertilizer** containing a predetermined amount of one or more inorganic materials selected from the group consisting of nitrogen, phosphate, **potash**, **sulfur**, **calcium**, and mixtures thereof, said method comprising the steps of: (a) mixing with an organic material... waste, wood and paper pulp waste, spent mushroom compost, methane and alcohol solid wastes, lignite, leonardite, humate and coal, a sufficient amount of said inorganic materials to provide said desired predetermined amount of said inorganic materials in the **fertilizer** product; (b) blending with the mixture produced in step (a) a sufficient amount of **acid** to reduce the pH thereof to be within the range of 1.0 to 0.5 and to cause chemical breakdown of

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said organic material; (c) curing the blended mixture by allowing it to stand without mixing for... . A method for producing an organic based **humic acid fertilizer** containing a predetermined amount of an available inorganic material selected from the group consisting of nitrogen, phosphate, potash, sulfur, and mixtures thereof and having a desired final pH level in the finished **fertilizer** product, said method comprising the steps of: (a) mixing with an organic material selected from the group consisting of livestock and poultry manure, sewage sludge, separated garbage, cotton gin trash, **fruit** cannery waste, vegetable cannery waste, nut cannery waste, wood and paper pulp waste, spent mushroom compost, methane and alcohol solid wastes, lignite, **leonardite**, humate, coal and mixtures thereof, a sufficient amount of said inorganic material to provide said predetermined amount of said inorganic material in the **fertilizer** product; (b) blending with the mixture **produced** in **step** (a) a sufficient amount of **acid** to substantially reduce the pH thereof and to cause chemical breakdown of said organic material; (c) allowing the blended mixture to stand for at least 20 minutes; (d) blending with **the** mixture produced in step (c) a sufficient amount of a base material to raise the...

Dialog eLink: Order File History

41/34,K/21 (Item 21 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0005042343

WPI Acc no: 1990-023784/199004

Compsn. for fertilising decontaminating and improving soil structuration - is hydraulically hardened mixt. of gypsum and ash from burning lignite, opt. with other nutrient sources

Patent Assignee: BANNWARTH H (BANN-I)

Inventor: BANNWARTH H

Patent Family (2 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
DE 3921805	A	19900118	DE 3822651	A	19880705	199004	B
			DE 3921805	A	19890703		
DE 3921805	C	19920730	DE 3921805	A	19890703	199231	E

Priority Applications (no., kind, date): DE 3822651 A 19880705; DE 3921805 A 19890703

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
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DE 3921805	A	DE	18	0
DE 3921805	C	DE	9	0

Alerting Abstract DE A

Compsn. for improving contaminated and defective soils is a mixt. of gypsum and basic ca-contg. **fertiliser** material (A), opt. together with other nutrient sources and water for mixing. The gypsum is esp. from combustion gas desulphurisation operations but can also be from H₃PO₄ mfr. or other industrial processes. (A) is e.g. quick, slaked or dolomitic-lime, pref. any sort of ash from burning lignite, opt. combined with electro-filter, fly or wet ashes.

USE/ADVANTAGE - Compsn. is applied to depleted, deeply acidified or compacted soils, or those contaminated by **acid**, heavy metals, hydrocarbons, nitrogen cpds. or pollutants. Among its pref. effects are : regenerating organic and inorganic ion-exchangers; elimination of Al toxicity; **acid** neutralisation (better than lime used alone); improvement in soil structure, sustained release of nutrients (including many trace elements). Generally the comps. can be used to remove **acids** from the air or water. The comps. is made from waste materials of power stations so is inexpensive and solves a disposal problem.

Equivalent Alerting Abstract DE C

Agent, for improving damaged or deficient soils, contains a mixt. of gypsum and basic, i.e., oxidic and/or hydroxidic limes comprising brown coal ashes, such as briquette ashes, old ashes, ashes from fluidised bed furnaces or from furnaces using the dry-additive process (TAV ashes), electrofilter ashes, fly ashes and wet ashes.

Pref. gypsums for flue gas de-sulphurisation plants (REA-gypsums) are used. Pref. the agent contains inorganic **fertilising** materials, e.g., ammonium sulphate, magnesium sulphate or other readily-soluble magnesium cpds. and nitrogen-phosphorus-potassium (NPK) **fertilisers**; or organic **fertilisers**, e.g., urea.

USE - In improving damage or deficient soils

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C09K-003/00			Main		"Version 7"
C02F-001/00; C05D-003/00; C05G-003/00; C09K-017/00			Secondary		"Version 7"

ECLA: C02F-001/28D, C02F-001/66, C05D-003/02+D9/00+F7/00+F9/04, C09K-017/06

Compsn. for fertilising decontaminating and improving soil

Utilization of residues from coal power plants in the nature

structuretion... Alerting Abstract ...for improving contaminated and defective soils is a mixt. of gypsum and basic ca-contg. **fertiliser** material (A), opt. together with other nutrient sources and water for mixing. The gypsum is... **ADVANTAGE** - Compsn. is applied to depleted, deeply acidified or compacted soils, or those contaminated by **acid**, heavy metals, hydrocarbons, nitrogen cpds. or pollutants. Among its pref. effects are : regenerating organic and inorganic ion-exchangers; elimination of Al toxicity; **acid** neutralisation (better than lime used alone); improvement in soil structure, sustained release of nutrients (including many trace elements). Generally the compsn. can be used to remove **acids** from the air or water. The compsn. is made from waste materials of power stations... **Equivalent Alerting Abstract** ...a mixt. of gypsum and basic, i.e., oxidic and/or hydroxidic limes comprising brown **coal** ashes, such as briquette ashes, old ashes, ashes from fluidised bed furnaces or from furnaces... **for** flue gas de-sulphurisation plants (REA-gypsums) are used. Pref. the agent contains inorganic **fertilising** materials, e.g., ammonium sulphate, magnesium sulphate or other readily-soluble magnesium cpds. and nitrogen-phosphorus-potassium (NPK) **fertilisers**; or organic **fertilisers**, e.g., urea... **Technology Focus Title Terms** .../Index Terms/Additional Words: **FERTILISATION**; **Class Codes**

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41/34,K/22 (Item 22 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0004409985

WPI Acc no: 1988-147098/198821

Humic acid fertiliser prodn. - by mixing organic material with inorganic elements, adding acid then base and further processing

Patent Assignee: ROBINSON E C (ROBI-I)

Inventor: ROBINSON E C

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 4743287	A	19880510	US 1982428102	A	19820929	198821	B
			US 1984653542	A	19840924		
			US 1986897798	A	19860819		

Priority Applications (no., kind, date): US 1986897798 A 19860819

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
US 4743287	A	EN	9	1	

Alerting Abstract US A

A method mimicking nature for producing **humic acid fertiliser** comprises (a) selecting at least one organic material from low **humic acid** materials including livestock and poultry manure, sewage sludge, sepd garbage, cotton gin trash, fruit cannery wastes, nut cannery wastes, wood and paper pulp wastes, spent mushroom compost, methane and alcohol solid wastes, lignite, **leonardite**, humate and **coal**, the organic material being at least 30% by dry wt of the finished prod for dry granular prodn and 10-25% by dry wt of the finished prod for slurry prodn., (b) analysing the organic material to determine the compsn of major inorganic elements of nitrogen, phosphate, potash and sulphur, (c) mixing trace amts up to 1 wt% of the major elements with the org material to produce a specific formula combination of the major elements in the finished **fertiliser** prod., (d) adding a measured quantity of water to the mixt to produce a moisture content of 12-30 wt%., (e) depositing the mixt in a reactor and sealing the reactor to the atmosphere, (f) blending with the mixt within the reactor a measured quantity of an **acid** material to drastically change the pH of the mixt., resulting in hydrolysatn of the mixt an increase in temp and pressure within the reactor, the quantity of **acid** material being 15-30 wt% of a finished granular prod and 5-15 wt% of a finished slurry prod., (g) blending a measured quantity of a base material with the mixt in the reactor to adjust the pH to that of the final **fertiliser**, the quantity of base material being 4-10 wt of a finished granular prod and 2-8 wt% of a finished slurry prod., (h) maintaining a pressure of up to 30 psi and a temp up to 280 deg F within the reactor to assist in hydrolysis and to form within the mixt a new molecular structure including molecular clusters of inorganic chemicals that surround larger **humic acid** molecules and (i) processing the finished **fertiliser** mixt to a desired consistency.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05F-0011/02	A	I		R	20060101
C05F-0015/00	A	I		R	20060101
C05F-0003/00	A	I		R	20060101
C05F-0011/00	C	I		R	20060101
C05F-0015/00	C	I		R	20060101
C05F-0003/00	C	I		R	20060101

ECLA: C05F-003/00+F7/00+F9/00+F11/00, C05F-011/02**US Classification, Current Main:** 71-012000; Secondary: 71-013000, 71-015000, 71-021000, 71-023000, 71-024000, 71-025000, 71-901000**US Classification, Issued:** 7112, 7113, 7115, 7121, 7123, 7124, 7125,

71901

Humic acid fertiliser prodn... ...by mixing organic material with inorganic elements, adding acid then base and further processing
Original Titles: Fertilizer and method **Alerting Abstract** ...A method mimicking nature for producing **humic acid fertiliser** comprises (a) selecting at least one organic material from low **humic acid** materials including livestock and poultry manure, sewage sludge, sepd garbage, cotton gin trash, fruit cannery... ..wastes, wood and paper pulp wastes, spent mushroom compost, methane and alcohol solid wastes, lignite, **leonardite**, humate and **coal**, the organic material being at least 30% by dry wt of the finished prod fororg material to produce a specific formula combination of the major elements in the finished **fertiliser** prod., (d) adding a measured quantity of water to the mixt to produce a moisture... ..the atmosphere, (f) blending with the mixt within the reactor a measured quantity of an **acid** material to drastically change the pH of the mixt., resulting in hydrolysis of the mixt an increase in temp and pressure within the reactor, the quantity of **acid** material being 15-30 wt% of a finished granular prod and 5-15 wt% of... ..with the mixt in the reactor to adjust the pH to that of the final **fertiliser**, the quantity of base material being 4-10 wt of a finished granular prod and... ..the mixt a new molecular structure including molecular clusters of inorganic chemicals that surround larger **humic acid** molecules and (i) processing the finished **fertiliser** mixt to a desired consistency. **Title Terms** /Index Terms/Additional Words: **HUMIC**;**ACID**;**FERTILISER**; **Class Codes** Original Publication Data by AuthorityArgentina**Publication No. Original Abstracts:**The invention relates to a novel **fertilizer** and method wherein a complex **humic acid fertilizer** is formed a mix of a select organic material, water, and measured amounts of major... ..sulfur. The constituents mixed in a sealed reactor system with a first material, usually an **acid**, are hydrolyzed by a drastic pH change, raising the mix temperature and pressure, and the... ..a further temperature and pressure increase, to alter the pH to that of the finished **fertilizer**, which **humic acid fertilizer** is then dried and granulated or liquefied to a pumpable slurry.

Dialog eLink: Order File History

41/34,K/23 (Item 23 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0002949007

WPI Acc no: 1984-029532/198405

Dry chelated fertiliser micro-nutrients prepn. - by mixing dry micro-nutrient sulphate with dry reaction prod. of leonardite ore, citric acid, nitric acid and sodium citrate
 Patent Assignee: KIMBRO W S (KIMB-I)

Inventor: KIMBRO W S

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 4425149	A	19840110	US 1982401262	A	19820723	198405	B

Priority Applications (no., kind, date): US 1982401262 A 19820723

Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
US 4425149	A	EN	3	0	

Alerting Abstract US A

Prepn. of a dry cpd. (I) comprises mixing 32 wt.% leonardite ore, 3 wt.% citric acid, 1 wt.% conc. HNO₃ and 64 wt.% MeOH. The mixt. is stirred ca. 1 hr. and mixed in 20:80 wt.ratio with Na citrate to give a chelating agent (II). This is stirred until dry and ground to a powder. (II) is then mixed with dry, powdered sulphates (III) of the micronutrients in the desired ratio and the mixt. allowed to stand until reaction is complete then reground to a powder. Pref. (III) is FeSO₄ in such amt. that the prod. contains ca. 14-20% chelated Fe.

A high % of micronutrients can be chelated with (II) and the prod. is very stable, c.f. use of **humic acid**, **citric acid** or **gluconic acid**, etc. as a substitute for EDTA.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05D-009/02			Secondary		"Version 7"

ECLA: C05D-009/02

US Classification, Issued: 7124, 71DIG.002, 711, 7164.11

Dry chelated fertiliser micro-nutrients prepn... Alerting Abstract ...can be chelated with (II) and the prod. is very stable, c.f. use of **humic acid**, **citric acid** or **gluconic acid**, etc. as a substitute for EDTA. **Title Terms** .../Index Terms/Additional Words: **FERTILISER**; **Class Codes**

 Dialog eLink: [Order File History](#)

41/34,K/24 (Item 24 from file: 350)

Save-2009-06-19_130357

DIALOG(R)File 350: Derwent WPIX

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0002167842

WPI Acc no: 1981-55827D/198131

Humus-supplying soil improver - contg. powdered fossilised shells of nekton, plankton, duckweed and seaweed

Patent Assignee: SAMUKAWA F (SAMU-I)

Inventor: SAGAWA F

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
JP 56070086	A	19810611	JP 1979145039	A	19791109	198131	B
			JP 1979145039	A	19791109		

Priority Applications (no., kind, date): JP 1979145039 A 19791109
 Patent Details

Patent Number	Kind	Lan	Pgs	Draw	Filing Notes
JP 56070086	A	JA	5		

Alerting Abstract JP A

A soil improver for agricultural farms comprises predominantly powdered **fossilised** shell of nekton, plankton, duckweed and seaweed contg. mainly CaO, CO₂ and SiO₂ and minor amounts of MgO, Fe₂O₃, P₂O₃, Al₂O₃, K₂O and H₂O. **Fossilised** shell has higher activity than calcite and is prepd. by crushing the shell, heat treating the coarse powder to remove the crystalline water and then finally dividing.

The **fossilised** shell contains bases humified by **humic acid** so that it penetrates deeply into soil and sustained for a longer by 300% period than calcite. It contains humus in amount several times higher by amt. than conventional compost and sustains **fertilisers** for a longer period by synergetic actions of humus colloids and siliceous colloids. It supplies humus to the soil and promotes the agglomeration of soil. It absorbs, ion exchanges and decomposes toxic materials contaminated in the soil, e.g. DDT, BHC, Cd, Hg, Zn, cyanides, detergents and PCB. The decayed microbes promote the proliferation of effective microbes to facilitate the decomposition of **fertilisers**. It enables consecutive plantation of vegetables which have been impossible to be planted consequently, e.g. tomato and water melon.S

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C09K-017/00			Secondary		"Version 7"

Japan National Classification FI Terms

FI Term	Facet	Rank	Type
C09K-101/00		Z	indexing
B09B-003/00 304 K			
C09K-017/00 B			
C09K-017/06 H			

Japan National Classification F Terms

Theme	ViewPoint + Figure	Additional Code
4D004		
4H026		
4H026	AA03	
4H026	AB02	
4H026	AB04	

...contg. powdered fossilised shells of nekton, plankton, duckweed and seaweed **Alerting Abstract** ...A soil improver for agricultural farms comprises predominantly powdered **fossilised** shell of nekton, plankton, duckweed and seaweed contg. mainly CaO, CO₂ and SiO₂ and minor amounts of MgO, Fe₂O₃, P₂O₃, Al₂O₃, K₂O and H₂O. **Fossilised** shell has higher activity than calcite and is prepd. by crushing the shell, heat treating... ...The **fossilised** shell contains bases humified by **humic acid** so that it penetrates deeply into soil and sustained for a longer by 300% period... ...It contains humus in amount several times higher by amt. than conventional compost and sustains **fertilisers** for a longer period by synergetic actions of humus colloids and siliceous colloids. It supplies... ...PCB. The decayed microbes promote the proliferation of effective microbes to facilitate the decomposition of **fertilisers**. It enables consecutive plantation of of vegetables which have been impossible to be planted consequently... **Title Terms** .../Index Terms/Additional Words: **FOSSIL**; ... **FOSSIL Class Codes**

Dialog eLink: Order File History

41/34,K/25 (Item 25 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0001635348

WPI Acc no: 1978-90070A/197850

Fertilisers rich in soluble humic acid - prepd. by treating lignite with alkali and a bio-catalyst contg. excrement

Patent Assignee: RODRIGUES CORREIA Z (RODR-I)

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
FR 2383146	A	19781110	FR 19777025	A	19770309	197850	B

Alerting Abstract FR A

Fertilisers rich in humates are prepd. by reaction of a **humic acid**-contg. starting material with an alkali in the presence of a biocatalyst, at normal temp. and pressure. The biocatalyst has animal excrement as its base and the reaction is allowed to proceed until it reaches 60 degrees C, after which it is cooled and the **fertiliser** recovered.

ADVANTAGES - The process is economical to carry out and gives an effective, balanced **fertiliser**.

ADVANTAGES - DETAILS

ADVANTAGES - The starting material is preferably lignite, peat, xylites, brown coal or leonardite. Suitable alkaline materials include K₂SO₄, Na₂CO₃, urea, KCl and MgCO₃.

ADVANTAGES - The biocatalyst typically contains 10-20% good quality earth, 2-10% nitrogen source, 40-60% **humic acid**-containing material, 10-30% animal excrement (urine and faeces), 2-5% phosphate, 1-5% Na₂CO₃, 1-5% Mg salt, and 2-10% trace elements.

ADVANTAGES - **Fertilisers** made according to the process contain at least 5% water-soluble **humic acid**, the water-soluble **humic acid** being up to 80% of the total **humic acid** content.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C05F-011/02			Secondary		"Version 7"

ECLA: C05B-017/00+C3/00+C11/00+D1/02+D5/00+D9/00+D9/02

Fertilisers rich in soluble humic acid - Alerting Abstract ...Fertilisers rich in humates are prepd. by reaction of a **humic acid**-contg. starting material with an alkali in the presence of a biocatalyst, at normal temp... ..to proceed until it reaches 60 degrees C, after which it is cooled and the **fertiliser** recovered... ..ADVANTAGES - The process is

economical to carry out and gives an effective, balanced **fertiliser**. ...
 ...ADVANTAGES - The starting material is preferably lignite, peat, xylites, brown coal or leonardite. Suitable alkaline materials include K₂SO₄, Na₂CO₃, urea, KCl and MgCO₃... ...The biocatalyst typically contains 10-20% good quality earth, 2-10% nitrogen source, 40-60% **humic acid**-containing material, 10-30% animal excrement (urine and faeces), 2-5% phosphate, 1-5% Na₂CO₃... ...ADVANTAGES - **Fertilisers** made according to the process contain at least 5% water-soluble **humic acid**, the water-soluble **humic acid** being up to 80% of the total **humic acid** content.
Title Terms /Index Terms/Additional Words: **FERTILISER**;**HUMIC**; ...
 ...**ACID**; **Class Codes**

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41/34,K/26 (Item 26 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0000273959

WPI Acc no: 1970-24007R/197015

Aqueous solutions of humic acid salts (russ)

Patent Assignee: PETRIK GK (PET-I)

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
SU 213798	A	00000000	SU 1097818	A	19660818	197015	B

Alerting Abstract SU A

AQUEOUS SOLUTIONS OF **HUMIC ACID** SALTS useful as **fertilisers**, and in well drilling, are obtained in higher concentration (10-12% with less energy expenditure by treatment of powdered **fossil** fuels such as coal or peat first with water, then 1-3% alkali (NH₃) solution solid phase: liquid phase ratio 1:2-1:6) with no external heating. Higher solid:solvent ratios yield solutions, but separation from the solid phase becomes difficult.

Class Codes

International Patent Classification

IPC	Class Level	Scope	Position	Status	Version Date
C07C			Secondary		"Version 7"

Save-2009-06-19_130357

Aqueous solutions of humic acid salts (russ) Alerting Abstract ... AQUEOUS SOLUTIONS OF HUMIC ACID SALTS useful as fertilisers, and in well drilling, are obtained in higher concentration (10-12% with less energy expenditure by treatment of powdered fossil fuels such as coal or peat first with water, then 1-3% alkali (NH₃) solution solid phase: liquid phase... **Title Terms .../Index Terms/Additional Words: HUMIC; ...**
...ACID; Class Codes

Dialog eLink: Order File History

41/34,K/27 (Item 27 from file: 350)

DIALOG(R)File 350: Derwent WPIX

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0000142833

WPI Acc no: 1967-03342H/196800

Production of humic acid

Patent Assignee: FMC CORP (FMCC)

Patent Family (1 patents, 1 countries)

Patent Number	Kind	Date	Application Number	Kind	Date	Update	Type
US 3398186	A	00000000	US 1963332841	A	19631223	196800	B

Alerting Abstract US A

Process of extracing **humic acids** (HA), in which the (HA)-source (leonardite, oxidized coal etc.) is extra. (pref. at reflux) with an aq. soln. of a sulphite salt at pH is no < ca 6, pref. 8-14. Filtered extract is then acidified (pH < ca 4.5) to give (HA). Sulphite (opt. prepd. in situ from bisulphite salt or from SO₂) may be Na₂SO₃, K₂SO₃, or (NH₄)₂SO₃. Wt. ratio sulphite: (HA)-source pref. is not <1:20. Original also claims above aq. (HA) extract, and resulting solid (HA) (sol. in aq. solns. at pH >4.5).

Simple inexpensive extraction process gives more concd. solns. of (HA) (ca 20%) than can be obtained by previous caustic extraction systems (ca 8%). In addn., prepd. (HA) remains in soln. at pH >ca 4.5 ((HA) normally pptd. at pH <7); thus in certain **fertilizer** applications, (HA) extract may be mixed directly with normally **acid** solns. without (HA) being pptd.

Class Codes

ECLA: C05F 011/02, C08H-005/00

US Classification, Current Main: 562-405000; Secondary: 71-024000

Production of humic acid Alerting Abstract ... Process of extracing **humic acids** (HA), in which the (HA)-source (leonardite, oxidized coal etc.) is extra. (pref. at reflux) with an aq. soln. of a sulphite salt at...

...soln. at pH >ca 4.5 ((HA) normally pptd. at pH <7); thus in certain
fertilizer applications, (HA) extract may be mixed directly with normally
acid solns. without (HA) being pptd. Title Terms .../Index
Terms/Additional Words: HUMIC;ACID Class Codes

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